

FIGURE 1

FIG. 2

Human G Protein Coupled Receptor Family
(Receptors known as of January, 1999)

CLASS	LIGAND	NUMBER	TISSUE	PHYSIOLOGY	THERAPEUTICS
Class I Rhodopsin like	•Amine				
	•Acetylcholine (muscarinic & nicotinic)	5	Brain, Nerves, Heart	Neurotransmitter	Acuity, Alzheimer's
	•Adrenoceptors				
	•Alpha Adrenoceptors	6	Brain, Kidney, Lung	Gluconeogenesis	Diabetes, Cardiovascular
	•Beta Adrenoceptors	3	Kidney, Heart	Muscle Contraction	Cardiovascular, Respiratory
	•Dopamine	5	Brain, Kidney, GI	Neurotransmitter	Cardiovascular, Parkinson's
	•Histamine	2	Vascular, Heart, Brain	Vascular Permeability	Anti-inflammatory, Ulcers
	•Serotonin (5-HT)	16	Most Tissues	Neurotransmitter	Depression, Insomnia, Analgesic
	•Peptide				
	•Angiotensin	2	Vascular, Liver, Kidney	Vasoconstriction	Cardiovascular, Endocrine
	•Bradykinin	1	Liver, Blood	Vasodilation,	Anti-inflammatory, Asthma
	•C5a anaphylatoxin	1	Blood	Immune System	Anti-inflammatory
	•Fmet-leu-phe	3	Blood	Chemoattractant	Anti-inflammatory
	•Interleukin-8	1	Blood	Chemoattractant	Anti-inflammatory
	•Chemokine	6	Blood	Chemoattractant	Anti-inflammatory
	•Orexin	2	Brain	Fat Metabolism	Obesity
	•Nociceptin	1	Brain	Bronchodilator, Pain	Airway Diseases, Anesthetic
	•CCK (Gastrin)	2	Gastrointestinal	Motility, Fat Absorption	Gastrointestinal, Obesity, Parkinson's
	•Endothelin	2	Heart, Bronchus, Brain	Muscle Contraction	Cardiovascular, Respiratory
	•Melanocortin	5	Kidney, Brain	Metabolic Regulation	Anti-inflammatory, Analgesics
	•Neuropeptide Y	5	Nerves, Intestine, Blood	Neurotransmitter	Behavior, Memory, Cardiovascular
	•Neurotensin	1	Brain,	CNS	Cardiovascular, Analgesic
	•Opioid	3	Brain,	CNS	Depression, Analgesic
	•Somatostatin	5	Brain, Gastrointestinal	Neurotransmitter	Oncology, Alzheimer's

FIG. 2 (cont.)

•Tachykinin (Substance P, NKA ₁)	3	Brain Nerves	Neurohormone	Depression, Analgesic
•Thrombin	3	Platelets, Blood Vessels	Coagulation	Anti-coagulant, Anti-inflammatory
•Vasopressin-like	4	Arteries, Heart, Bladder	Water Balance	Anti-diuretic, Diabetic Complications
•Galanin	1	Brain, Pancreas	Neurotransmitter	Analgesics, Alzheimer's
•Hormone protein				
•Follicle stimulating hormone	1	Ovary, Testis	Endocrine	Infertility
•Lutropin-choriogonadotropic	1	Ovary, Testis	Endocrine	Infertility
•Thyrotropin	1	Thyroid	Endocrine	Thyroidism, Metabolism
•(Rhod)opsin				
•Opsin	5	Eye	Photoreception	Ophthalmic Diseases
•Olfactory	4(~1000)	Nose	Smell	Olfactory Diseases
•Prostanoid				
•Prostaglandin	5	Arterial, Gastrointestinal	Vasodilation, Pain	Cardiovascular, Analgesic
•Lysophosphatidic Acid	2	Vessels, Heart, Lung	Inflammation	Cancer, Anti-Inflammatory
•Sphingosine-1-phosphate	2	Most Cells	Cell proliferation	Cancer
•Leukotriene	1	White Blood Cells, Bronchus	Inflammation	Asthma, Rheumatoid Arthritis
•Prostacyclin	1	Arterial, Gastrointestinal	Platelet Regulation	Cardiovascular
•Thromboxane	1	Arterial, Bronchus	Vasoconstriction	Cardiovascular, Respiratory
•Nucleotide-like				
•Adenosine	4	Vascular, Bronchus	Multiple Effects	Cardiovascular, Respiratory
•Purinocceptors	4	Vascular, Platelets	Relaxes Muscle	Cardiovascular, Respiratory
•Cannabis	2	Brain	Sensory Perception	Analgesics, Memory
•Platelet activating factor	1	Most Peripheral Tissues	Inflammation	Anti-inflammatory, Anti-asthmatic
•Gonadotropin-releasing hormone like				
•Gonadotropin-releasing hormone	1	Reproductive Organs, Pituitary	Reproduction	Prostate Cancer, Endometriosis
•Thyrotropin-releasing hormone	1	Pituitary, Brain	Thyroid Regulation	Metabolic Regulation
•Growth hormone-inhibiting factor	1	Gastrointestinal	Neuroendocrine	Oncology, Alzheimer's
•Melatonin	1	Brain, Eye, Pituitary	Neuroendocrine	Regulation of Circadian Cycle

FIG. 2 (cont.)

•Class II Secretin like	•Secretin	1	Gastrointestinal, Heart	Digestion	Obesity, Gastrointestinal
	•Calcitonin	1	Bone, Brain	Calcium Resorption	Osteoporosis
	•Corticotropin releasing factor/urocortin	1	Adrenal, Vascular, Brain	Neuroendocrine	Stress, Mood, Obesity
	•Gastric inhibitory peptide (GIP)	1	Adrenals, Fat Cells	Sugar/Fat Metabolism	Diabetes, Obesity
	•Glucagon	1	Liver, Fat Cells, Heart	Gluconeogenesis	Cardiovascular
	•Glucagon-like Peptide 1 (GLP-1)	1	Pancreas, Stomach, Lung	Gluconeogenesis	Cardiovascular, Diabetes, Obesity
	•Growth hormone-releasing hormone	1	Brain	Neuroendocrine	Growth Regulation
	•Parathyroid hormone	1	Bone, Kidney	Calcium Regulation	Osteoporosis
	•PACAP	1	Brain, Pancreas, Adrenals	Metabolism	Metabolic Regulation
	•Vasoactive intestinal polypeptide (VIP)	1	Gastrointestinal	Motility	Gastrointestinal
•Class III	•Metabotropic Glutamate	7	Brain	Sensory Perception	Hearing, Vision
	•GABA _B	1	Brain	Neurotransmitter	Mood Disorders
	•Extracellular Calcium Sensing	1	Parathyroid, Kidney, GI Tract	Calcium Regulation	Cataracts, GI Tumors

Figure 3

G protein-coupled receptors:

(Division into Class A

Or Class B)

1. **A1 adenosine receptor** [Homo sapiens]. ACCESSION AAB25533
NPIVYAF RIQKFRVTFL KIWNDFHRCQ PAPPIDEDLP EERPDD
Class A
2. **adrenergic, alpha -1B-, receptor** [Homo sapiens]. ACCESSION NP_000670
npiiypc sskefkrafv rilgcqcrgr grrrrrrr lggcaytyrp wtrggslers qsrkdsldds gscslgsqrt lpsaspspgy
lrggapppve lcafepwkap gallslpape ppgrgrhds gplftfklit epespqtdgg asnggceaaa dvangqpqfk
snmplapgqf
Class A
3. **adrenergic receptor alpha-2A** [Homo sapiens]. ACCESSION AAG00447
npviytifn hdfrrafkki lcrgrkriv
Class A
4. **alpha-2B-adrenergic receptor - human**. ACCESSION A37223
npviytifn qdfrrafri lcrpwtqtaw
Class A
5. **alpha-2C-adrenergic receptor - human**. ACCESSION A31237
npviytfvn qdfrrpsfkhi lfrmrgrfr q
Class A
6. **beta-1-adrenergic receptor** [Homo sapiens]. ACCESSION NP_000675
npiiycrs pdfrrafqgl lccarraar rhathgdrpr asgclarpgp ppspgaasdd ddddvvgatp parllepwag
cnggaaadsd ssldepcrpg faseskv
Class A
7. **beta-2 adrenergic receptor**. ACCESSION P07550
npliycrsp dfrriafqell clrrsslkay gngyssngnt 361 geqsgyhveq ekenklced lpgtedfvgh qgtvpsdnid
sqgrncstnd sll
Class A
8. **dopamine receptor D1** [Homo sapiens]. ACCESSION NP_000785
npii yafnadfrka fstllgcyr lcpatnnaiet vsinnngaam fsshheprgs iskecnlvyl iphavgsed lkkeeaagia
rpleklspal svldytdtv slekiqpitq ngqhpt
Class A
9. **D(2) dopamine receptor**. ACCESSION P14416
npiiyttfn iefrrafiki lhc
Class A

Figure 3 (cont.)

10. **d3 dopamine receptor - human. ACCESSION G01977**
np viyttfnief rkafilkilsc
Class A
11. **dopamine receptor D4 - human. ACCESSION DYHUD4**
npviyvtv fnaefrnmvfr kalracc
Class A
12. **dopamine receptor D5 - human. ACCESSION DYHUD5**
npviya fnadfqqkqvf qllgcshfcs rtpvetvnis nelisynqdi vfhkeiaaay ihmmpnavtp gnrevdndee
egpfdrmfqi yqtspdgdpv aesvweldce geisldkitp fipngfh
Class A
13. **muscarinic acetylcholine receptor M1 [Homo sapiens]. ACCESSION NP_000729**
nrmeyal cnkafrdtfr lllcrwdkr rwrkipkrpg svhrtpsrgc
Class A
14. **muscarinic acetylcholine receptor M2 [Homo sapiens]. ACCESSION NP_000730**
npacy alcnatfkkt fkhllmchyk nigatr
Class A
15. **muscarinic acetylcholine receptor M3 [Homo sapiens]. ACCESSION NP_000731**
n pvcyalcnkt ftrtfkmlll cqcdkkkrrk qqyqqrqsvi fhkrapeqal
Class A
16. **muscarinic acetylcholine receptor M4 [Homo sapiens]. ACCESSION NP_000732**
npa cyalcnatfk ktrfhlllcq yrnigtar
Class A
17. **m5 muscarinic receptor. locus HUMACHRM ACCESSION AAA51569**
npicyalcnr tfrktfkmll lcrwkkkkve eklywqgnsk lp
Class A
18. **5-hydroxytryptamine (serotonin) receptor 1A [Homo sapiens]. ACCESSION BAA90449**
npviy ayfnkdfqna fkkiikckf
Class A
19. **5-hydroxytryptamine (serotonin) receptor 1B [Homo sapiens]. ACCESSION BAA94455**
npiiyt msnedfkqaf hklirfkets
Class A
20. **5-hydroxytryptamine (serotonin) receptor 1E [Homo sapiens]. ACCESSION BAA94458**
n pllytsfnd fklafkkir cre
Class A

Figure 3 (cont.)

21. **OLFACTORY RECEPTOR 6A1.** ACCESSION O95222
npiiyclrnq evkralccil hlyqhqdmdp kkgsmv
Class A
22. **OLFACTORY RECEPTOR 2C1.** ACCESSION O95371
npliy tlmmevkga lrrllgkgre vg
Class A
23. **angiotensin receptor 1 [Homo sapiens].** ACCESSION NP_033611
npl fygflgkfk ryflqllyki ppkakshsnl sfkmsflsyr psdnvssstk kpapcfeve
Class B
24. **angiotensin receptor 2 [Homo sapiens].** ACCESSION NP_000677
npflycf vgnrfqqklr svfrvpitwl qgkresmscr kssslremet fvs
Class B
25. **interleukin 8 receptor beta (CXCR2) [Homo sapiens].** ACCESSION NM_001557
NPLIYAFIGQKFRHGLLKILAIHGLISKDSL PKDSRPSFVGSSSGHTSTTL
Class B
26. **cx3c chemokine receptor 1 (cx3cr1) (fractalkine receptor)**
ACCESSION P49238
np liyafagekf rrylyhlygk clavlggrsv hvdffssesq rsrhgsvlss nftyhtsdgd allll
Class B
27. **neurotensin receptor - human.** ACCESSION S29506
n pilynlvsan frhiflatla clcpvwrrrr krpafsrkad svssnhflss natretly
Class B
28. **SUBSTANCE-P RECEPTOR (SPR) (NK-1 RECEPTOR) (NK-1R).** ACCESSION P25103
npiiyccldn rfrlgfk haf rccpfisagd yeglemkstr ylqtqgsvyk vsrlettistvvgaheepe dgpkatpssl
dltsncssrs dsktmtesfs fssnvl
Class B
29. **vasopressin receptor type 2 [Homo sapiens].** ACCESSION AAD16444
npwiyasfss svsselrsl ccargtrpps lgpqdescft asslakdts s
Class B
30. **thyrotropin-releasing hormone receptor - human.** ACCESSION JN0708
npviy nlmsqkfraa frklcnckqk ptekpanysv alnysvikes dhfstelddi tvtdtylsat kvsfddtcla sevsfsqs
Class B

Figure 3 (cont.)

31. **oxytocin receptor - human.** ACCESSION A55493
npwiymlftghlfhelvqrfllccsasylkgrrlgetsaskksnsss fvlshrsssq rscsqpsta
Class B
32. **neuromedin U receptor [Homo sapiens].** ACCESSION AAG24793
npvlyslmssrfretfqealclgacchrlprhsshslsrmttgstlcdvsglsgswvhplagndgpeaqetdps
Class B
33. **gastrin receptor.** ACCESSION AAC37528
nplvy cfmhrrfrqa cletcarccp rpprarpral pdedpptpsi aslsrlytt isflgpg
Class B
34. **galanin receptor 3 [Homo sapiens].** ACCESSION 10879541
nplv yalashrfra rfrlwpcgr rrrhrraral rrvpassgp pgcpgdarps grllagggqg pepregpvhg geaargpe
Class A
35. **edg-1 - human.** ACCESSION A35300
npiiy tltknemrra firimsckc psgdsagkfk rpiiagmefs rksdnsshp 361 qkdegdnpet imssgnvnss s
Class A
36. **central cannabinoid receptor [Homo sapiens].** ACCESSION NP_057167
npiiyalr skdlrhafsr mfpscegtaq pldnsmgdsd clkhannaa svhraesci kstvkiaevt msvstdtsae al
Class A
37. **delta opioid receptor - human.** ACCESSION I38532
npvlyaf ldenfkrcfr qlcrkpcgrp dpssfsrpre atarervtac tpsdgpgggr aa
Class A
38. **proteinase activated receptor 2 (PAR-2) human.** ACCESSION P55085
dpfvyyfvshdfrdhaknallcrsvrtvkqmqltskkhsrksssyssssttvktsy
Class A
39. **vasopressive intestinal peptide receptor (VIPR) rat.** ACCESSION NM_012685
NGEVQAELRRKWRRWHLQGVLGWSSKSQHPWGGSNGATCSTQVSMLTRVSPSARR
SSSFQAEVSLV
Class B

FIGURE 4

The mutated amino acid at the second position of the DRY motif is underlined.

VASOPRESSIN V2 RECEPTOR - (Human)
accession P30518

R137H

1 MLMASTTSAV PGHPSLPSLP SNSSQERPLD TRDPLLARAE LALLSIVFVA VALSNGLVLA
61 ALARRGRRGH WAPIHVFIGH LCLADLAVAL FQVLPQLAWK ATDRFRGPDA LCRAVKYLQM
121 VGMYASSYMI LAMTLDEHRA ICRPMLAYRH GSGAHWNRPV LVAWAFSLLL SLPQLFIFAQ
181 RNVEGGSGVT DCWACFAEPW GRRTYVTWIA LMVFVAPTLG IAACQVLIFR EIHASLVPGP
241 SERPGGRRRG RRTGSPGEGA HVSAAVAKTV RMTLVIVVVY VLCWAPFFLV QLWAAWDPEA
301 PLEGAPFVLL MLLASLNSCT NPWIYASFSS SVSSELRSLL CCARGRTPPS LGPQDESCTT
361 ASSSLAKDTS S

(SEQ ID NO:40)

ALPHA-1B ADRENERGIC RECEPTOR (ALPHA 1B-ADRENOCEPTOR).
(Golden hamster)
ACCESSION P18841

R143E

1 MNPDLDTGHN TSAPAQWGEL KDANFTGPNQ TSSNSTLPQL DVTRAISVGL VLGAFILFAI
61 VGNILVILSV ACNRHLRTPT NYFIVNLAIA DLLLSFTVLP FSATLEVLGY WVLGRIFCDI
121 WAAVDVLCCT ASILSLCAIS IDEYIGVRYS LQYPTLVTRR KAILALLSVW VLSTVISIGP
181 LLGWKEPAPN DDKECGVTEE PFYALFSSLG SFYIPLAVIL VMYCRVYIVA KRTTKNLEAG
241 VMKEMSNSKE LTLRIHKNF HEDTLSSTKA KGHNPRSSIA VKLFKFSREK KAAKTLGIVV
301 GMFILCWLPF FIALPLGSLF STLKPPDAVF KVVFWLGYFN SCLNPIIYPC SSKEFKRAFM
361 RILGCQCRSG RRRRRRRRLG ACAYTYRPWT RGGSLERSQS RKDSLDDSGS MSGSQRTLTP
421 SASPSPGYLG RGAQPPELC AYPEWKSGAL LSLPEPPGRR GRLDGGLFT FKLLGEPESP
481 GTEGDASNGG CDATTDLANG QPGFKSNMPL APGHF

(SEQ ID NO:41)

R143A

1 MNPDLDTGHN TSAPAQWGEL KDANFTGPNQ TSSNSTLPQL DVTRAISVGL VLGAFILFAI
61 VGNILVILSV ACNRHLRTPT NYFIVNLAIA DLLLSFTVLP FSATLEVLGY WVLGRIFCDI
121 WAAVDVLCCT ASILSLCAIS IDAYIGVRYS LQYPTLVTRR KAILALLSVW VLSTVISIGP
181 LLGWKEPAPN DDKECGVTEE PFYALFSSLG SFYIPLAVIL VMYCRVYIVA KRTTKNLEAG
241 VMKEMSNSKE LTLRIHKNF HEDTLSSTKA KGHNPRSSIA VKLFKFSREK KAAKTLGIVV
301 GMFILCWLPF FIALPLGSLF STLKPPDAVF KVVFWLGYFN SCLNPIIYPC SSKEFKRAFM
361 RILGCQCRSG RRRRRRRRLG ACAYTYRPWT RGGSLERSQS RKDSLDDSGS MSGSQRTLTP
421 SASPSPGYLG RGAQPPELC AYPEWKSGAL LSLPEPPGRR GRLDGGLFT FKLLGEPESP
481 GTEGDASNGG CDATTDLANG QPGFKSNMPL APGHF

(SEQ ID NO:42)

FIG. 4 (cont.)

R143H

1 MNPDLDTGHN TSAPAQWGEL KDANFTGPNQ TSSNSTLPQL DVTRAI SVGL VLGA FILFAI
61 VGNILVILSV ACNRHLRTPT NYFIVNLAIA DLLLSFTVLP FSATLEVLGY WVLGRIFCDI
121 WAAVDVLCCT ASILSLCAIS ID^HYIGVRYS LQYPTLVTRR KAILALLSVW VLSTVISIGP
181 LLGWKEPAPN DDKECGVTEE PFYALFSSLG SFYIPLAVIL VMYCRVYIVA KRTTKNLEAG
241 VMKEMSNSKE LTLRIHSKNF HEDTLSSTKA KGHNPRSSIA VKLFKFSREK KAAKTLGIVV
301 GMFILCWLFP FIALPLGSLF STLKPPDAVF KVVFWLGYFN SCLNPPIIYPC SSKEFKRAFM
361 RILGCQCRSG RRRRRRRRLG ACAYTYRPWT RGGSLERSQS RKDSLDDSGS CMSGSQRTL P
421 SASPSPGYL G RGAQPPELC AYPEWKSGAL LSLPEPPGRR GRLD SGPLFT FKLLGEPESP
481 GTEGDASNGG CDATTDLANG QPGFKSNMPL APGHF

(SEQ ID NO:43)

R143N

1 MNPDLDTGHN TSAPAQWGEL KDANFTGPNQ TSSNSTLPQL DVTRAI SVGL VLGA FILFAI
61 VGNILVILSV ACNRHLRTPT NYFIVNLAIA DLLLSFTVLP FSATLEVLGY WVLGRIFCDI
121 WAAVDVLCCT ASILSLCAIS ID^NYIGVRYS LQYPTLVTRR KAILALLSVW VLSTVISIGP
181 LLGWKEPAPN DDKECGVTEE PFYALFSSLG SFYIPLAVIL VMYCRVYIVA KRTTKNLEAG
241 VMKEMSNSKE LTLRIHSKNF HEDTLSSTKA KGHNPRSSIA VKLFKFSREK KAAKTLGIVV
301 GMFILCWLFP FIALPLGSLF STLKPPDAVF KVVFWLGYFN SCLNPPIIYPC SSKEFKRAFM
361 RILGCQCRSG RRRRRRRRLG ACAYTYRPWT RGGSLERSQS RKDSLDDSGS CMSGSQRTL P
421 SASPSPGYL G RGAQPPELC AYPEWKSGAL LSLPEPPGRR GRLD SGPLFT FKLLGEPESP
481 GTEGDASNGG CDATTDLANG QPGFKSNMPL APGHF

(SEQ ID NO:44)

Angiotensin II Receptor, Type 1 (AT1A) [Rattus norvegicus].
ACCESSION NP_112247

R126H

1 MALNSSAEDG IKRIQDDCPK AGRHSYIFVM IPTLYSIIFV VGIFGNSLVV IVIYFYMKLK
61 TVASVFLNL ALADLCFLLT CPLWAVYTAM EYRWPFGNHL CKIASASVTF NLYASVFLLT
121 CLSID^HYLAI VHPMKSRLRR TMLVAKVTCI IIWLMAGLAS LPAVIHRNVY FIENTNITVC
181 AFHYESRNST LPIGLGLTKN ILGFLFPFLI ILTSYTLIWK ALKKAYEIQK NKPRNDDIFR
241 IIMAIVLFFF FSWVPHQIFT FLDVLIQLGV IHDCKISDIV DTAMPITICI AYFNNCLNPL
301 FYGFLGKKFK KYFLQLLKYI PPKAKSHSSL STKMSTLSYR PSDNMSSSAK KPASCFEVE

(SEQ ID NO:45)

Figure 5

A. Amino Acid sequence of the hGPR3- Enhanced Receptor

MMWGAGSPLAWLSAGSGNVNVSSVGPAEGPTGPAAPLPSPKAWDVVLCISGTLVSCENA
LVVAIIIVGTPAFRAPMFLLVGSLAVADLLAGLGLVLHFAAVFCIGSAEMSLVLVGVLAM
AFTASIGSLLAITVDRYLSLYNALTYSETTVTRTYVMLALVWGGALGLGLLPVLAWNC
LDGLTTTCGVVYPLSKNHLVVLAI AFFMVFGIMLQLYAQICRIVCRHAQQIALQRHLLPA
SHYVATRKG IATLAVVLGAFAACWLPFTVYCLLGDHSPPLYTYLTLLPATYNSMINPI
IYAFRNQDVQKVLWAVCCCCAAARGRTPPSLGPQDESCTTASSSLAKDTSS
(SEQ ID No: 46)

B. Nucleotide sequence of the hGPR3- Enhanced Receptor

ATGATGTGGGGTGCAGGCAGCCCTCTGGCCTGGCTCTCAGCTGGCTCAGGCAACGTGAA
TGTAAGCAGCGTGGGCCCAGCAGAGGGGCCCACAGGTCCAGCCGCACCACTGCCCTCGC
CTAAGGCCTGGGATGTGGTGCTCTGCATCTCAGGCACCCTGGTGTCTCTGCGAGAATGCG
CTAGTGGTGGCCATCATCGTGGGCACTCCTGCCTTCCGTGCCCCCATGTTCTCTGCTGGT
GGGCAGCCTGGCCGTGGCAGACCTGCTGGCAGGCCTGGGCCTGGTCTGCACTTTGCTG
CTGTCTTCTGCATCGGCTCAGCGGAGATGAGCCTGGTGTCTGGTTGGCGTGCTGGCAATG
GCCTTTACYGCCAGCATCGGCAGTCTACTGGCCATCACTGTTCGACCGCTACCTTTCTCT
GTACAATGCCCTCACCTACTATTAGAGACAACAGTGACACGGACCTATGTGATGCTGG
CCTTAGTGTGGGGAGGTGCCCTGGGCCTGGGGCTGCTGCCTGTGCTGGCCTGGAACCTGC
CTGGATGGCCTGACCACATGTGGCGTGGTTTATCCACTCTCCAAGAACCATCTGGTAGT
TCTGGCCATTGCCTTCTTCATGGTGTTTGGCATCATGCTGCAGCTCTACGCCCAAATCT
GCCGCATCGTCTGCCGCCATGCCAGCAGATTGCCCTTCAGCGGCACCTGCTGCCTGCC
TCCCACTATGTGGCCACCCGCAAGGGCATTGCCACACTGGCCGTGGTGTCTGGAGCCTT
TGCCGCCTGCTGGTTGCCCTTCACTGTCTACTGCCTGCTGGGTGATGCCCACTCTCCAC
CTCTCTACACCTATCTTACCTTGCTCCCTGCCACCTACAACCTCCATGATCAACCCTATC
ATCTACGCCTTCCGCAACCAGGATGTGCAGAAAGTGCTGTGGGCTGTCTGCTGCTGCTG
TGCGGCCGCACGGGGACGCACCCCAACCAGCCTGGGTCCCCAAGATGAGTCCTGCACCA
CCGCCAGCTCCTCCCTGGCCAAGGACACTTCATCGTGA
(SEQ ID No: 47)

Figure 5 (continued)

C. Amino Acid sequence of the hGPR6- Enhanced Receptor

MNASAASLND SQVVVVAEGAAAAATAAGGPD TGEWGPPAAAALGAGGGANGSLELSSQ
LSAGPPG LLLPAVNPWDVLLCVSGTVIAGENALVVALIASTPALRTPMFVLVGLATAD
LLAGCGLILHFVFQYLV PSETVSLLTVGFLVASFAASVSSLLAITVD RYLSLYNALTYY
SRRTL LGVHLLLAATWTVSLGLGLLPVLGWNCLAERAACSVVRPLARSHVALLSAAFFM
VFGIMLHLYVRICQVVRHAHQIALQQHCLAPPHLAATRKG VGT LAVVLGTFGASWLPF
AIYCVVGSHE DPAVYTYATLLPATYNSMINPIIYAFRNQEIQRALWLLLCGCAAARGRT
PPSLGPQDESCTTASSSLAKDTSS

(SEQ ID No: 48)

D. Nucleotide sequence of the hGPR6- Enhanced Receptor

ATGAACGCGAGCGCCGCTCGCTCAACGACTCCCAGGTGGTGGTAGTGGCGGCCGAAGG
AGCGGCGGGCGGCGGCCACAGCAGCAGGGGGGCGGACACGGGCGAATGGGGACCCCCCTG
CTGCGGCGGCTCTAGGAGCCGGCGGCGGAGCTAATGGGTCTCTGGAGCTGTCTCTCGCAG
CTGTCTGGCTGGGGCCACCGGGACTCCTGCTGCCAGCGGTGAATCCGTGGGACGTGCTCCT
GTGCGTGTCTGGGGACAGTGATCGCTGGAGAAAACGCGCTGGTGGTGGCGCTCATCGCGT
CCACTCCGGCGCTGCGCACGCCCATGTTCTGTCTGGTAGGCAGCCTGGCCACCGCTGAC
CTGTTGGCGGGCTGTGGCCTCATCTTGCACTTTGTGTTCCAGTACTTGGTGCCCTCGGA
GACTGTGAGTCTGCTCACGGTGGGCTTCCTCGTGGCCTCCTTCGCCGCTCTGTGAGCA
GCCTGCTGGCCATTACGGTGGACCGCTACCTGTCCCTGTATAACGCGCTCACCTATTAC
TCGCGCCGGACCCCTGTTGGGCGTGACCTCCTGCTTGCCGCCACTTGACCGTGTCCCT
AGGCCTGGGGCTGCTGCCCCGTGCTGGGCTGGAAGTGCCTGGCAGAGCGCGCCGCCTGCA
GCGTGGTGCGCCCGCTGGCGCGCAGCCACGTGGCTCTGCTCTCCGCCGCCTTCTTCATG
GTCTTCGGCATCATGCTGCACCTGTACGTGCGCATCTGCCAGGTGGTCTGGCGCCACGC
GCACCAGATCGCGCTGCAGCAGCACTGCCTGGCGCCACCCCATCTCGCTGCCACCAGAA
AGGGTGTGGGTACACTGGCTGTGGTGTGCTGGGCACTTTCGGCGCCAGCTGGCTGCCCTTC
GCCATCTATTGCGTGGTGGGCGAGCCATGAGGACCCGGCGGTCTACACTTACGCCACCCT
GCTGCCCCGCCACCTACAACCTCATGATCAATCCCATCATCTATGCCTTCCGCAACCAGG
AGATCCAGCGCGCCCTGTGGCTCCTGCTCTGTGGCTGTGCGGCCGCACGGGGACGCACC
CCACCCAGCCTGGGTCCCCAAGATGAGTCCTGCACCACCGCCAGCTCCTCCCTGGCCAA
GGACACTTCATCGTGA

(SEQ ID No: 49)

Figure 5 (continued)

E. Amino Acid sequence of the hGPR12- Enhanced Receptor

MNEDLKVNLSGLPRDYLDAAAAENISAASVSRVPAVEPEPELVVNPWDIVLCTSGTLIS
CENAIIVVLIIFHNPSLRAPMFLIGSLALADLLAGIGLITNFVFAYLLQSEATKLVTIG
LIVASFSAVCSLLAITVDRYLSLYYALTYHSERTVTFTYVMLVMLWGTSICLGLLPVM
GWNCLRDESTCSVVRPLTKNNAAILSVSFLFMFALMLQLYIQICKIVMRHAHQIALQHH
FLATSHYVTTRKGVSTLAIILGTFAACWMPFTLYSLIADYTPSIYTYATLLPATYNSI
INPVIYAFRNQEIQKALCLICCGCAAARGRTPPSLGPQDESCCTASSSLAKDTSS
(SEQ ID No: 50)

F. Nucleotide sequence of the hGPR12- Enhanced Receptor

ATGAATGAAGACCTGAAGGTCAATTTAAGCGGGCTGCCTCGGGATTATTTAGATGCCGC
TGCTGCGGAGAACATCTCGGCTGCTGTCTCCTCCCGGGTTCTGCCGTAGAGCCAGAGC
CTGAGCTCGTAGTCAACCCCTGGGACATTGTCTTGTGTACCTCGGGAACCCCTCATCTCC
TGTGAAAATGCCATTGTGGTCCTTATCATCTTCCACAACCCCAAGCCTGCGAGACCCAT
GTTCTGCTAATAGGCAGCCTGGCTCTTGCAGACCTGCTGGCCGGCATTTGGACTCATCA
CCAATTTTGTGTTTTGTCCTACCTGCTTCAGTCAGAAGCCACCAAGCTGGTCACGATCGGC
CTCATTGTGCGCTCTTTCTCTGCTCTGTCTGCAGCTTGCTGGCTATCACTGTTGACCG
CTACCTCTCACTGTACTACGCTCTGACGTACCATTCGGAGAGGACGGTCACGTTTACCT
ATGTCATGCTCGTCATGCTCTGGGGGACCTCCATCTGCCTGGGGCTGCTGCCCCGTCATG
GGCTGGAAGTGCCTCCGAGACGAGTCCACCTGCAGCGTGGTCAGACCGCTCACCAAGAA
CAACGCGGCCATCCTCTCGGTGTCCTTCTTTCATGTTTTCGCTCATGCTTCAGCTCT
ACATCCAGATCTGTAAGATTGTGATGAGGCACGCCCATCAGATAGCCCTGCAGCACCAC
TTCCTGGCCACGTGCGACTATGTGACCACCCGAAAGGGGTCTCCACCCTGGCTATCAT
CCTGGGGACGTTTGCTGCTTGCTGGATGCCTTTACCCCTCTATTCTTGATAGCGGATT
ACACCTACCCCTCCATCTATACCTACGCCACCCTCCTGCCCCGCCACCTACAATTCCATC
ATCAACCCTGTCATATATGCTTTCAGAAACCAAGAGATCCAGAAAGCGCTCTGTCTCAT
TTGCTGCGGCTGCGCGGCCGACGGGGACGCACCCACCCAGCCTGGGTCCCCAAGATG
AGTCCTGCACCACCGCCAGCTCCTCCCTGGCCAAGGACACTTCATCGTGA
(SEQ ID No: 51)

Figure 5 (continued)

G. Amino Acid sequence of the hSREB3- Enhanced Receptor

MANTTGEPEEVSGALSPPSASAYVKLVLLGLIMCVSLAGNAILSLLVLKERALHKAPYY
FLLDLCLADGIRSAVCFPFVLASVRHGSSWTFSALECKIVAFMAVLFCFHAAFMLFCIS
VTRYMAIAHHRFYAKRMTLWTCAAVICMAWTLVAMAFPPVFDVGTYKFIREEDQCIFE
HRYFKANDTLGFMLMLAVLMAATHAVYGKLLLFYRHRKMKPVQMPAISONWTFHGPG
ATGQAAANWIAGFGRGPMPTLLGIRQNGHAASRLLGMDEVKGEKQLGRMFYAITLLF
LLLWSPYIVACYWRVFKACAVPHRYLATAVWMSFAQAAVNPIVCFLLNKDLKKCLRTH
APCAAARGRTPPSLGPQDESCTTASSSLAKDTSS

(SEQ ID No: 52)

H. Nucleotide sequence of the hSREB3- Enhanced Receptor

ATGGCCAACACTACCGGAGAGCCTGAGGAGGTGAGCGGCGCTCTGTCCCCACCGTCCGC
ATCAGCTTATGTGAAGCTGGTACTGCTGGGACTGATTATGTGCGTGAGCCTGGCGGGTA
ACGCCATCTTGTCCCTGCTGGTGCTCAAGGAGCGTGCCCTGCACAAGGCTCCTTACTAC
TTCCTGCTGGACCTGTGCCTGGCCGATGGCATAACGCTCTGCCGTCTGCTTCCCCTTTGT
GCTGGCTTCTGTGCGCCACGGCTCTTCATGGACCTTCAGTGCACTCAGCTGCAAGATTG
TGGCCTTTATGGCCGTGCTCTTTTGCTTCCATGCGGCCTTCATGCTGTTCTGCATCAGC
GTCACCCGCTACATGGCCATCGCCACCACCGCTTCTACGCCAAGCGCATGACACTCTG
GACATGCGCGGCTGTCTGTCATGGCCTGGACCCTGTCTGTGGCCATGGCCTTCCCAC
CTGTCTTTGACGTGGGCACCTACAAGTTTATTTCGGGAGGAGGACCAGTGCACTCTTTGAG
CATCGCTACTTCAAGGCAATGACACGCTGGGCTTCATGCTTATGTTGGCTGTGCTCAT
GGCAGCTACCCATGCTGTCTACGGCAAGCTGCTCCTCTTCGAGTATCGTCACCGCAAGA
TGAAGCCAGTGCAAGATGGTGCCAGCCATCAGCCAGAACTGGACATTCCATGGTCCCGGG
GCCACCGGCCAGGCTGTGCCAACTGGATCGCCGGCTTTGGCCGTGGGCCCATGCCACC
AACCCTGCTGGGTATCCGGCAGAATGGGCATGCAGCCAGCCGGCGGCTACTGGGCATGG
ACGAGGTCAAGGGTGAAAAGCAGCTGGGCGCATGTTCTACGCGATCACACTGCTCTTT
CTGCTCCTCTGGTCACCCTACATCGTGGCCTGCTACTGGCGAGTGTTTGTGAAAGCCTG
TGCTGTGCCCCACCGCTACCTGGCCACTGCTGTTTGGATGAGCTTCGCCCAGGCTGCCG
TCAACCCAATTGTCTGCTTCCTGCTCAACAAGGACCTCAAGAAGTGCTGAGGACTCAC
GCCCCCTGCGCGGCCGCACGGGGACGCACCCACCCAGCCTGGGTCCCCAAGATGAGTC
CTGCACCACCGCCAGCTCCTCCCTGGCCAAGGACACTTCATCGTGA

(SEQ ID No: 53)

Figure 5 (continued)

I. Amino Acid sequence of the hSREB2- Enhanced Receptor

MANYSHAADNILQNLSP LTAFLKLTSLGFIIGVSVVGNLLISILLVKDKTLHRAPYYFL
LDLCCSDILRSAICFPFVFN SVKNGSTW TYGTLTCKVIAFLGVLSCFHTAFMLFCISVT
RYLAIAHHRFYTKRLTFW TCLAVICMVW TLSVAMAFPPVLDVGTYSFIREEDQCTFQHR
SFRANDSLGFMLLLALILL ATQLVYLKLIFFVHDRRKMKPVQFVA AVSQNWTFHGP GAS
GQAAANWL AGFGRGPTPPTLLGIRQ NANTTGRRRLLVLDEFKMEKRISR MFYIMTFLFL
TLWGPYLVACYWRV FARGPVVPGGFLTA AVWMSFAQAGINPFVCIFSNRELRRCFSTTL
LYCAAARGRTPPSLGPQDE SCTTASSSLAKDTSS
(SEQ ID No: 54)

J. Nucleotide sequence of the hSREB2- Enhanced Receptor

ATGGCGAACTATAGCCATGCAGCTGACAACATTTTGCAAAATCTCTCGCCTCTAACAGC
CTTTCTGAAACTGACTTCCTTGGGTTTCATAATAGGAGTCAGCGTGGTGGGCAACCTCC
TGATCTCCATTTTGCTAGTGAAAGATAAGACCTTG CATAGAGCACCTTACTACTTCCTG
TTGGATCTTTGCTGTT CAGATATCCTCAGATCTGCAATTTGTTTCCCATTTGTGTTCAA
CTCTGTCAAAAATGGCTCTACCTGGACTTATGGGACTCTGACTTGCAAAGTGATTGCCT
TTCTGGGGGTTTTGTCTGTTTCCACACTGCTTTCATGCTCTTCTGCATCAGTGTCACC
AGATACTTAGCTATCGCCCATCACCGCTTCTATACAAAGAGGCTGACCTTTTGGACGTG
TCTGGCTGTGATCTGTATGGTGTGGACTCTGTCTGTGGCCATGGCATTTC CCCCCGTTT
TAGACGTGGGCACTTACTCATT CATTAGGGAGGAAGATCAATGCACCTTCCAACACCGC
TCCTTCAGGGCTAATGATTCCCTTAGGATTTATGCTGCTTCTTGCTCTCATCCTCCTAGC
CACACAGCTTGTCTACCTCAAGCTGATATTTTTCGTCCACGATCGAAGAAAAATGAAGC
CAGTCCAGTTTGTAGCAGCAGTCAGCCAGA ACTGGACTTTTCATGGTCTTGAGCCAGT
GGCCAGGCAGCTGCCAATTGGCTAGCAGGATTTGGAAGGGGTCCCACACCACCCACCTT
GCTGGGCATCAGGCAAAATGCAAACACCACAGGCAGAAGAAGGCTATTGGTCTTAGACG
AGTTCAAAATGGAGAAAAGAATCAGCAGAATGTTCTATATAATGACTTTTCTGTTTCTA
ACCTTGTTGGGGCCCCCTACCTGGTGGCCTGTTATTGGAGAGTTTTTGCAAGAGGGCCTGT
AGTACCAGGGGATTTCTAACAGCTGCTGTCTGGATGAGTTTTGCCCAAGCAGGAATCA
ATCCTTTTGTCTGCATTTTCTCAAACAGGGAGCTGAGGCGCTGTTTCAGCACAAACCCTT
CTTTACTGCGCGGCCGCACGGGGACGCACCCCAACCAGCCTGGGTCCCCAAGATGAGTC
CTGCACCACCGCCAGCTCCTCCCTGGCCAAGGACACTTCATCGTGA
(SEQ ID No: 55)

Figure 5 (continued)

K. Amino Acid sequence of the hGPR8- Enhanced Receptor

MQAAGHPEPLDSRGSFSLPTMGANVSQDNGTGHNATFSEPLPFLYVLLPAVYSGICAVG
LTGNTAVILVILRAPKMKTVTNVFILNLAVADGLFTLVLPVNIAEHLQLQYWPFGELLCK
LVLAVDHYNIFSSIIYFLAVMSVDRYLVLATVRSRHMPWRTYRGAKVASLCVWLGVTVL
VLPFFSFAGVYSNELQVPSCGLSFPWPERVWFKASRVYTLVLGFVLPVCTICVLYTDLL
RRLRAVRLRSGAKALGKARRKVTVLVLVLAVCLLCWTFPHLASVVALTTDLPLQTPPLVI
SMSYVITSLSYANSCLNPFYAFLLDDNFRKNFRSILRCAAARGRTPPSLGPDDESCTTA
SSSLAKDTSS

(SEQ ID No: 56)

L. Nucleotide sequence of the hGPR8- Enhanced Receptor

ATGCAGGCCGCTGGGCACCCAGAGCCCCTTGACAGCAGGGGCTCCTTCTCCCTCCCCAC
GATGGGTGCCAACGTCTCTCAGGACAATGGCACTGGCCACAATGCCACCTTCTCCGAGC
CACTGCCGTTCTCTATGTGCTCCTGCCCGCCGTGTACTCCGGGATCTGTGCTGTGGGG
CTGACTGGCAACACGGCCGTCATCCTTGTAATCCTAAGGGCGCCCAAGATGAAGACGGT
GACCAACGTGTTTCATCCTGAACCTGGCCGTCGCCGACGGGCTCTTCACGCTGGTACTGC
CCGTCAACATCGCGGAGCACCTGCTGCAGTACTGGCCCTTCGGGGAGCTGCTCTGCAAG
CTGGTGCTGGCCGTCGACCACTACAACATCTTCTCCAGCATCTACTTCCTAGCCGTGAT
GAGCGTGGACCGATACCTGGTGGTGCTGGCCACCGTGAGGTCCCGCCACATGCCCTGGC
GCACCTACCGGGGGGCGAAGGTCGCCAGCCTGTGTGTCTGGCTGGGCGTCACGGTCCTG
GTTCTGCCCTTCTTCTCTTTCGCTGGCGTCTACAGCAACGAGCTGCAGGTCCCAAGCTG
TGGGCTGAGCTTCCCGTGGCCCGAGCGGGTCTGGTTCAAGGCCAGCCGTGTCTACACTT
TGGTCCTGGGCTTCGTGCTGCCCGTGTGCACCATCTGTGTGCTCTACACAGACCTCCTG
CGCAGGCTGCGGGCCGTGCGGCTCCGCTCTGGAGCCAAGGCTCTAGGCAAGGCCAGGCG
GAAGGTGACCGTCCTGGTCCTCGTCGTGCTGGCCGTGTGCCTCCTCTGCTGGACGCCCT
TCCACCTGGCCTCTGTGCTGGCCCTGACCACGGACCTGCCCCAGACCCCACTGGTCATC
AGTATGTCCTACGTCATCACCAGCCTCAGCTACGCCAACTCGTGCCTGAACCCCTTCCT
CTACGCCTTTCTAGATGACAACCTCCGGAAGAACTCCGCAGCATATTGCGGTGCGCGG
CCGCACGGGGACGCACCCCAACCAGCCTGGGTCCCCAAGATGAGTCCTGCACCACCGCC
AGCTCCTCCCTGGCCAAGGACACTTCATCGTGA

(SEQ ID No: 57)

Figure 5 (continued)

M. Amino Acid sequence of the hGPR22-Enhanced Receptor

MCFSPILEINMQSESNITVRDDIDDINTNMYQPLSYPLSFQVSLTGFLMLEIVLGLGSN
LTVLVLYCMKSNLINSVSNIIITMNLHVLDVIIICVGCIPLTIVILLLSLESNTALICCFH
EACVSFASVSTAINVFAITLDRYDISVKPANRIITMGRAVLMISIWIFSFFSFLIPFI
EVNFFSLQSGNTWENKTLLCVSTNEYYTELGMYHLLVQIPIFFFTVVVMLITYTKILO
ALNIRIGTRFSTGQKKKARKKKTISLTTQHEATDMSQSSGGRNVVFGVRTSVSVIIALR
RAVKRHRERRERQKRVFRMSLLIIISTFLLCWTPISVLNTTILCLGPSDLLVKLRCLFLV
MAYGTTIFHPLLYAFTRQKFQKVLKSKMKRNVVCAAARGRTPPSLGPQDESCTTASSSL
AKDTSS

(SEQ ID No: 58)

N. Nucleotide sequence of the hGPR22-Enhanced Receptor

ATGTGTTTTTCTCCcaTTCTGGAAATCAACATGCAGTCTGAATCTAACATTACAGTGCG
AGATGACATTGATGACATCAACACCAATATGTACCAACCACTATCATATCCGTTAAGCT
TTCAAGTGTCTCTCACCGGATTTCTTATGTTAGAAATTGTGTTGGGACTTGGCAGCAAC
CTCACTGTATTGGTACTTTACTGCATGAAATCCAACCTTAATCAACTCTGTCTAGTAACAT
TATTACAATGAATCTTCATGTACTTGTATGTAATAATTTGTGTGGGATGTATTCCCTCTAA
CTATAGTTATCCTTCTGCTTTCACTGGAGAGTAACACTGCTCTCATTTGCTGTTTCCAT
GAGGCTTGTGTATCTTTTGCAAGTGTCTCAACAGCAATCAACGTTTTTGTCTATCACTTT
GGACAGATATGACATCTCTGTAAAACCTGCAAACCGAATTCTGACAATGGGCAGAGCTG
TAATGTTAATGATATCCATTTGGATTTTTTCTTTTTTCTCTTTCCTGATTCCTTTTATT
GAGGTAAATTTTTTTCAGTCTTCAAAGTGGAATACCTGGGAAAACAAGACACTTTTATG
TGTCAGTACAAATGAATACTACACTGAACTGGGAATGTATTATCACCTGTTAGTACAGA
TCCCAATATTCTTTTTCACTGTTGTAGTAATGTTAATCACATACACCAAATACTTCAG
GCTCTTAATATTCTGAATAGGCACAAGATTTTCAACAGGGCAGAAGAAGAAAGCAAGAAA
GAAAAAGACAATTTCTCTAACCACACAACATGAGGCTACAGACATGTCACAAAGCAGTG
GTGGGAGAAATGTAGTCTTTGGTGTAAAGAACTTCAGTTTCTGTAATAATTGCCCTCCGG
CGAGCTGTGAAACGACACCGTGAACGACGAGAAAGACAAAAGAGAGTCTTCAGGATGTC
TTTATTGATTATTCTACATTCTTCTCTGCTGGACACCAATTTCTGTTTTAAATACCA
CCATTTTATGTTTAGGCCCAAGTGACCTTTTAGTAAAATTAAGATTGTGTTTTTTAGTC
ATGGCTTATGGAACAACTATATTTACCCCTCTATTATATGCATTCACTAGACAAAAATT
TCAAAAGGTCTTGAAAAGTAAAATGAAAAAGCGAGTTGTTTGTGCGGCCGCACGGGGAC
GCACCCACCCAGCCTGGGTCCCCAAGATGAGTCCTGCACCACCGCCAGCTCCTCCCTG
GCCAAGGACACTTCATCGTGA

(SEQ ID No: 59)

FIGURE 6

A. Amino acid sequence of the β_2 AR-V2R chimera

MGQPGNGSAFL LAPNRSHAPDHDVTQQRDEVWVVG MGIVMSLIVLAIVFGNVLVITAI
AKFERLQTVTNYFITS LACADLVMGLAVVPFGAAHILMKMWTFGNFWCEFWTSIDVLC
VTASIELTLCVIAVD RYFAITSPFKYQSLLTKNKARVILMVWIVSGLTSFLPIQMHWRAT
HQEAINCYANETCCDFFT NQAYALASSIVSFYVPLVIMVFVYSRVFQEAKRQLQKIDKSE
GRFHVQNLSQVEQDGR TGHGLRRSSKFCLKEHKALKTLGIIMGTFTLCWLPFFIVNIVHV
IQDNLIRKEVYILLN WIGYVNSGFNPLIYCRSPDFRIAFQELLCARGRTPPSLGPQDESCTT
ASSSLAKDTSS

(Seq. ID No. 60)

B. Amino acid sequence of the MOR-V2R chimera

MDSSTGPGNTSDCSDPLAQASCSPAPGSWLNLSHVDGNQSDPCGLNRTGLGGNDSLCP
QTGSPSMVTAITIMALYSIVCVVGLFGNFLVMYVIVRYTKMKTATNIYIFNLALADALAT
STLPFQSVNYLMGTWPFGTILCKIVISIDYYNMFTSIFTLCTMSVDRYIAVCHPVKALDFR
TPRNAKIVNVCNWILSSAIGLPVMFMATTKYRQGSIDCTLTFSHPTWYWENLLKICVFIF
AFIMPILITVCYGLMILRLKSVRMLSGSKEKDRNLRRITRMVLVVAVFIVCWTPIHIVVI
IKALITIPETTFQTVSWHFCIALGYTNSCLNPVLYAFLDENFKRCFREFCAAARGRTPPSL
GPQDESCTTASSSLAKDTSS

(Seq. ID No. 61)

C. Amino acid sequence of the D1AR-V2R chimera

MAPNTSTMDEAGLPAERDFSFRILTACFLSLLILSTLLGNTLVCAAVIRFRHLRSKVTNFF
VISLAVSDLLVAVLVMPWKAVAEIAGFWPFGSFCNIWVAFDIMCSTASILNLCVISVD RY
WAISSPFQYERKMTPKAAFILISVAWTL SVLISFIPVQLSWHKAKPTWPLDGNFTSLEDTE
DDNCDTRLRSRTYAISSSLISFYIPVAIMIVTYTSIYRIAQKQIRRISALERA AVHAKNCQTT
AGNGNPVECAQSESSFKMSFKRETKVLKTL SVIMGVFVCCWLPFFISNCMV PFCGSEET
QPFCIDSITFDVFVWFGWANSSLNPIIYAFNADFQKAFSTLLGCYRLCAAARGRTPPSLGP
QDESCTTASSSLAKDTSS

(Seq. ID No. 62)

Figure 6 (cont.)

D. Amino acid sequence of the 5HT1AR-V2R chimera

MDVLSPGQGNNNTSPAPFETGGNTTGISDVTVSQVITSLLLGTLIFCAVLGNACVVAA
IALERSLQNVANYLIGSLAVTDLMSVSVLVPMAALYQVLNKWTLGQVTCDLFIALDVL
CCTSSILHLCAIALDRYWAITDPIDYVNRKTPRRAAALISLTWLIGFLISIPPMLGWRTPED
RSDPDACTISKDHGYTIYSTFGAFYIPLLLMLVLYGRIFRAARFRIRKTVKKVEKTGADT
RHGASPAPQPKKSVNGESGSRNWRLGVESKAGGALCANGAVRQGDDGAALEVIEVHR
VGNSKEHLPLPSEAGPTPCAPASFERKNERNNAEAKRKMALARERKTVKTLGIIMGTFILC
WLPFFIVALVLPFCESSCHMPTLLGAIINWLGYSNSLLNPVIYAYFNKDFQNAFKKIICN
FCAAARGRTPPSLGPQDESCTTASSSLAKDTSS

(Seq. ID No. 63)

E. Amino acid sequence of the β 3AR-V2R chimera

MAPWPHENSSLAPWPDLPNTANTSGLPGVPEAALAGALLALAVLATVGGNLLV
IVAIAWTPRLQTMNTNFVTSALAAADLVMGLLVPPAATLALTGHWPLGATGCELWTSV
DVLCVTASIELCALAVDRYLAVTNPLRYGALVTKRCARTAVVLVWVVSAAVSFAPIM
SQWWRVGADAEARCHSNPRCCAFASNMPYVLLSSSVSFYLPLLVMLFVYARVAVVA
TRQLRLLRGELGRFPPEESPPAPSRSLAPAPVGTAPPEGVPACGRRPARLLPREHRALC
TLGLIMGTFTLCWLPPFLANVLRALGGPSLVPGPAFLALNWLGYSANSAFNPLIYCRSPDF
RSAFRLLRCRCAAARGRTPPSLGPQDESCTTASSSLAKDTSS

(Seq. ID No. 64)

F. Amino acid sequence of the Edg1R-V2R chimera

MGPTSVPLVKAHRSSVSDYVNYDIIVRHNYTGKLNISADKENSILKTSVVFILICCFIILE
NIFVLLTIWKTCKKFHRPMYYFIGNLALSLLAGVAYTANLLSGATTYKLTQAQWFLRE
GSMFVALSASVFSLLAIAIERYITMLKMKLHNGSNFRLFLLISACWVISLILGGLPIMGW
NCISALSSCSTVLPYHKHYILFCTTVFTLLLSIVILYCRIYSLVRTRSRLTFRKNISKAS
RSSEKSLALLKTVIIVLSVFIACWAPLILLLLDVGCKVKTCDILFRAEYFLVLAVLNSGT
NPIIYTLTNKEMRRAFIRIMSCCKCAAARGRTPPSLGPQDESCTTASSSLAKDTSS

(Seq. ID No. 65)

Figure 7

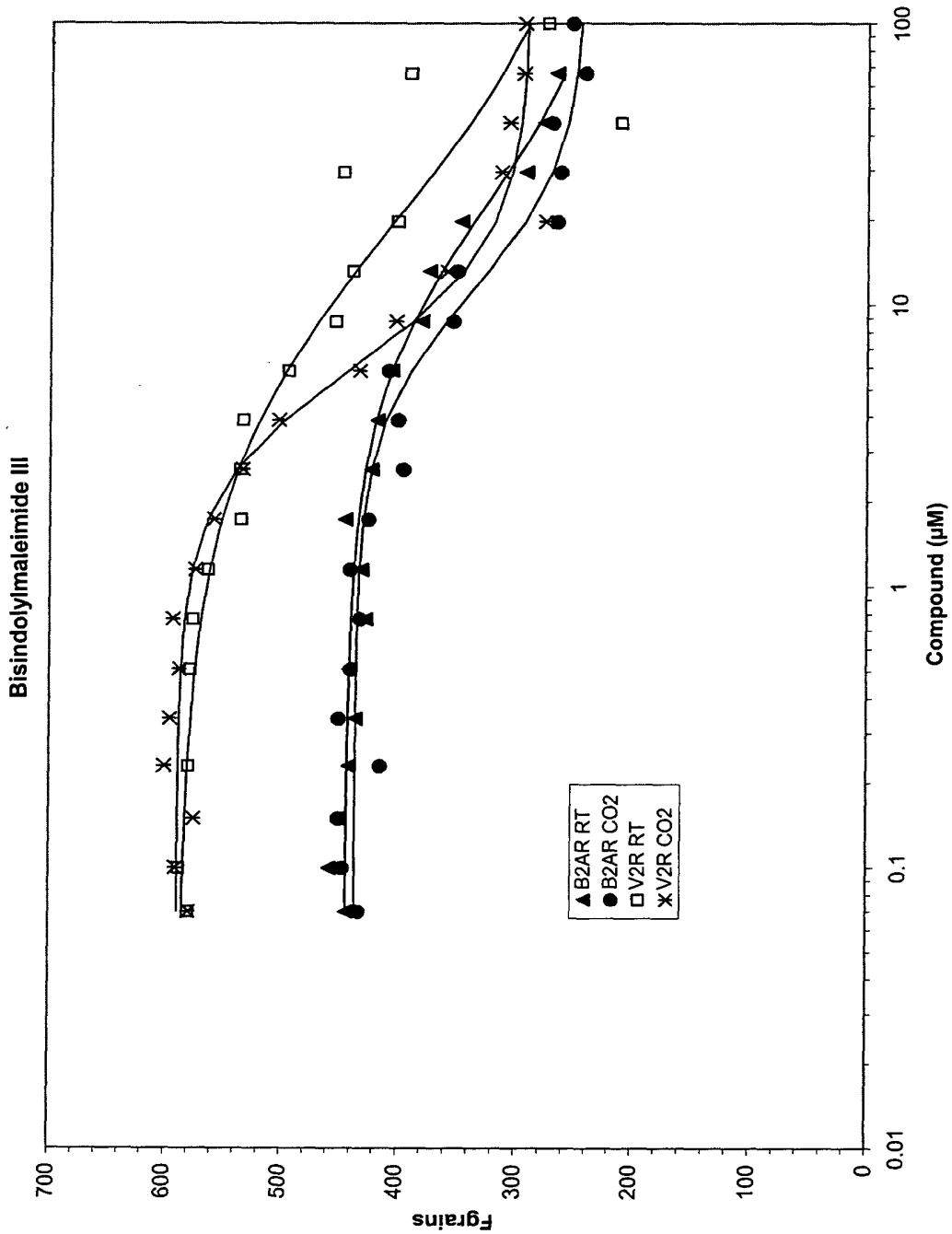


Figure 8

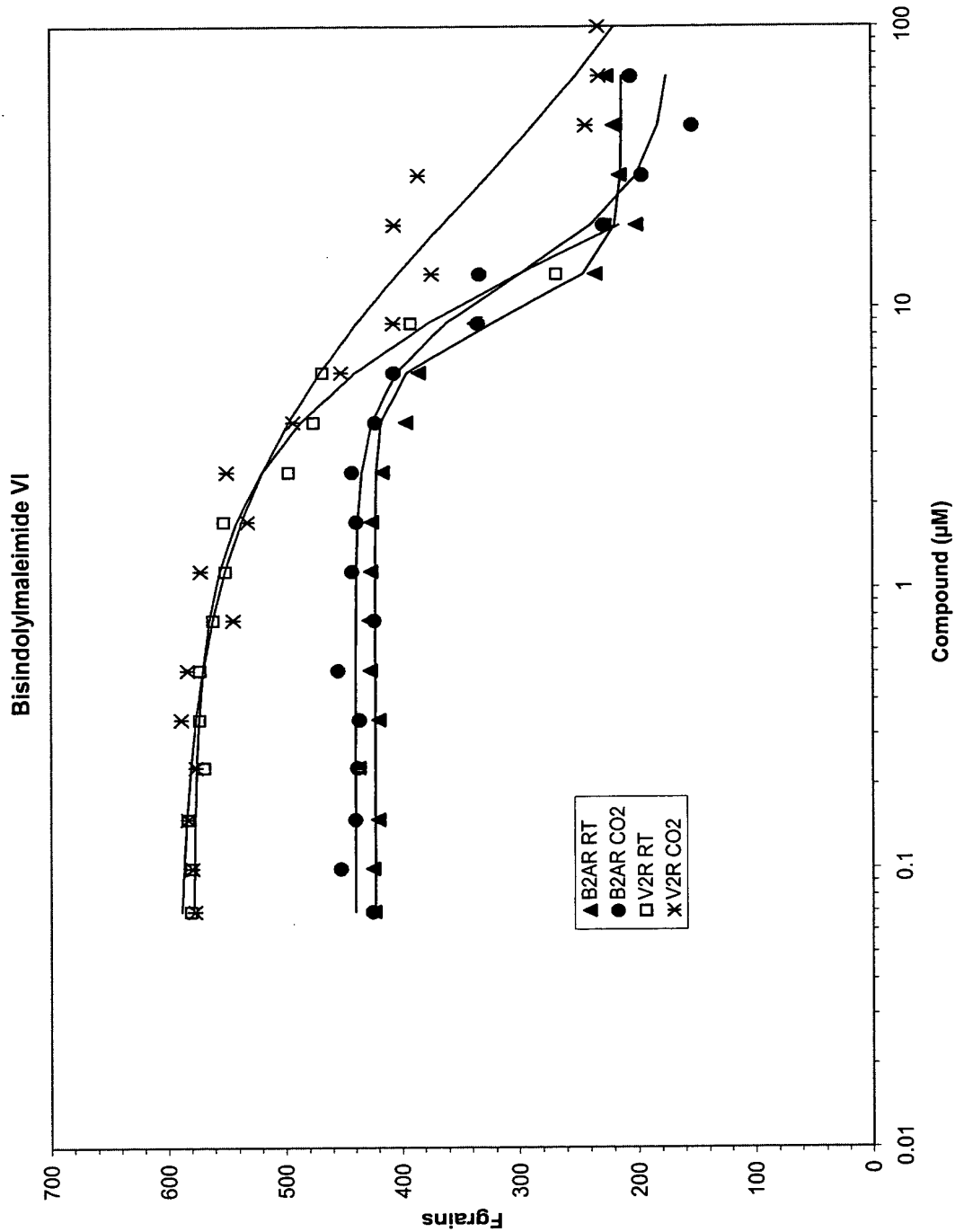


Figure 9

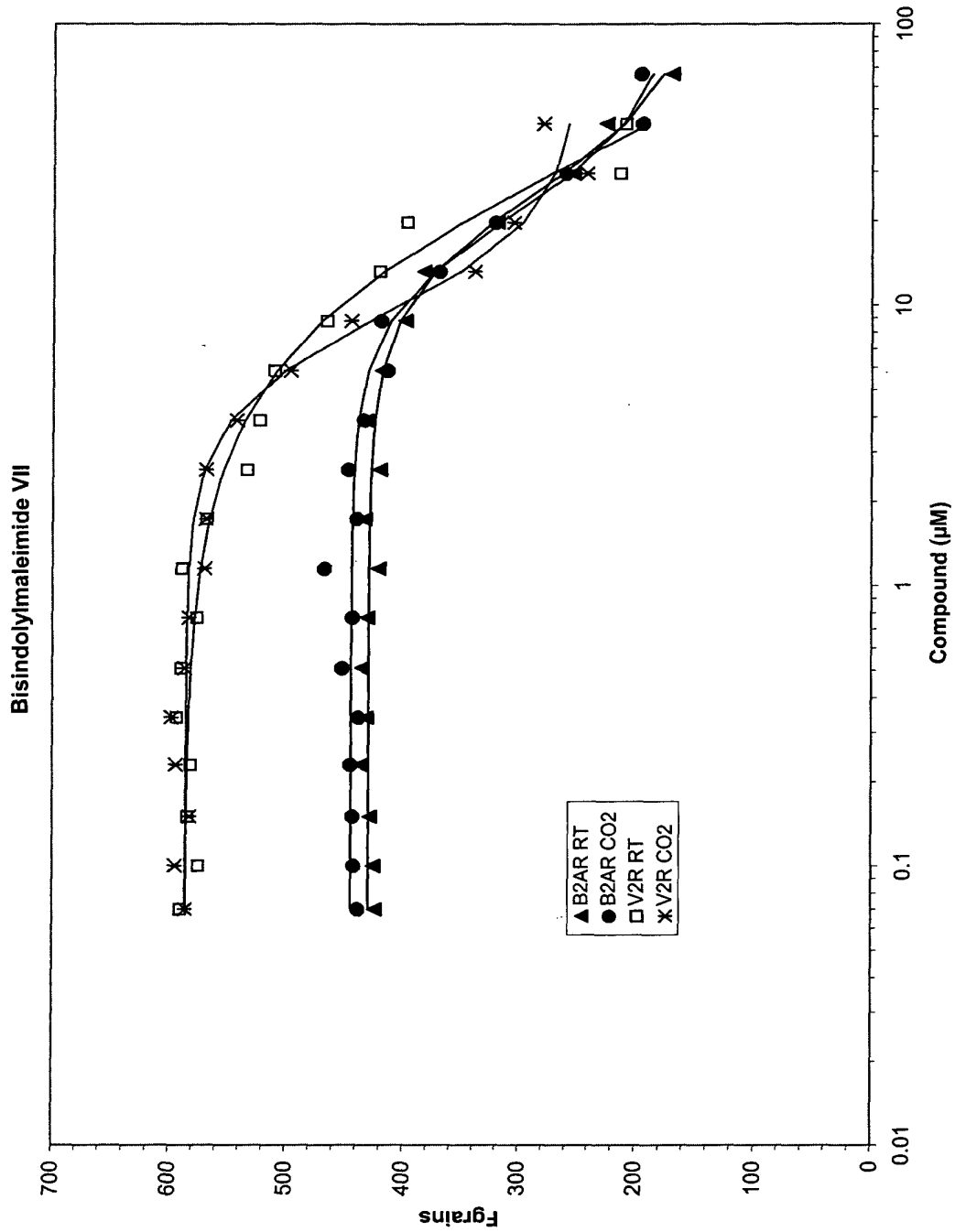


Figure 10

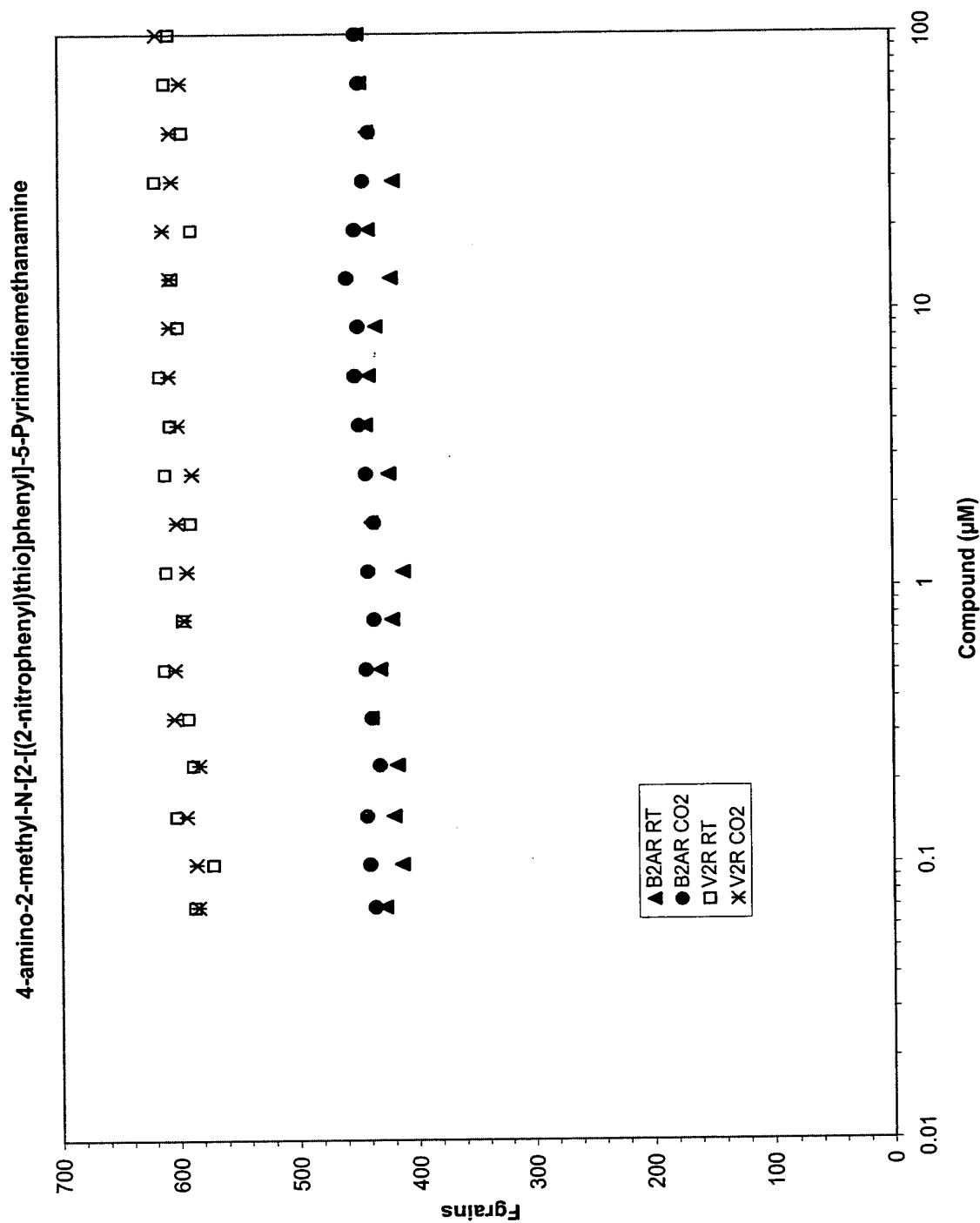


Figure 11

RO-31-7549

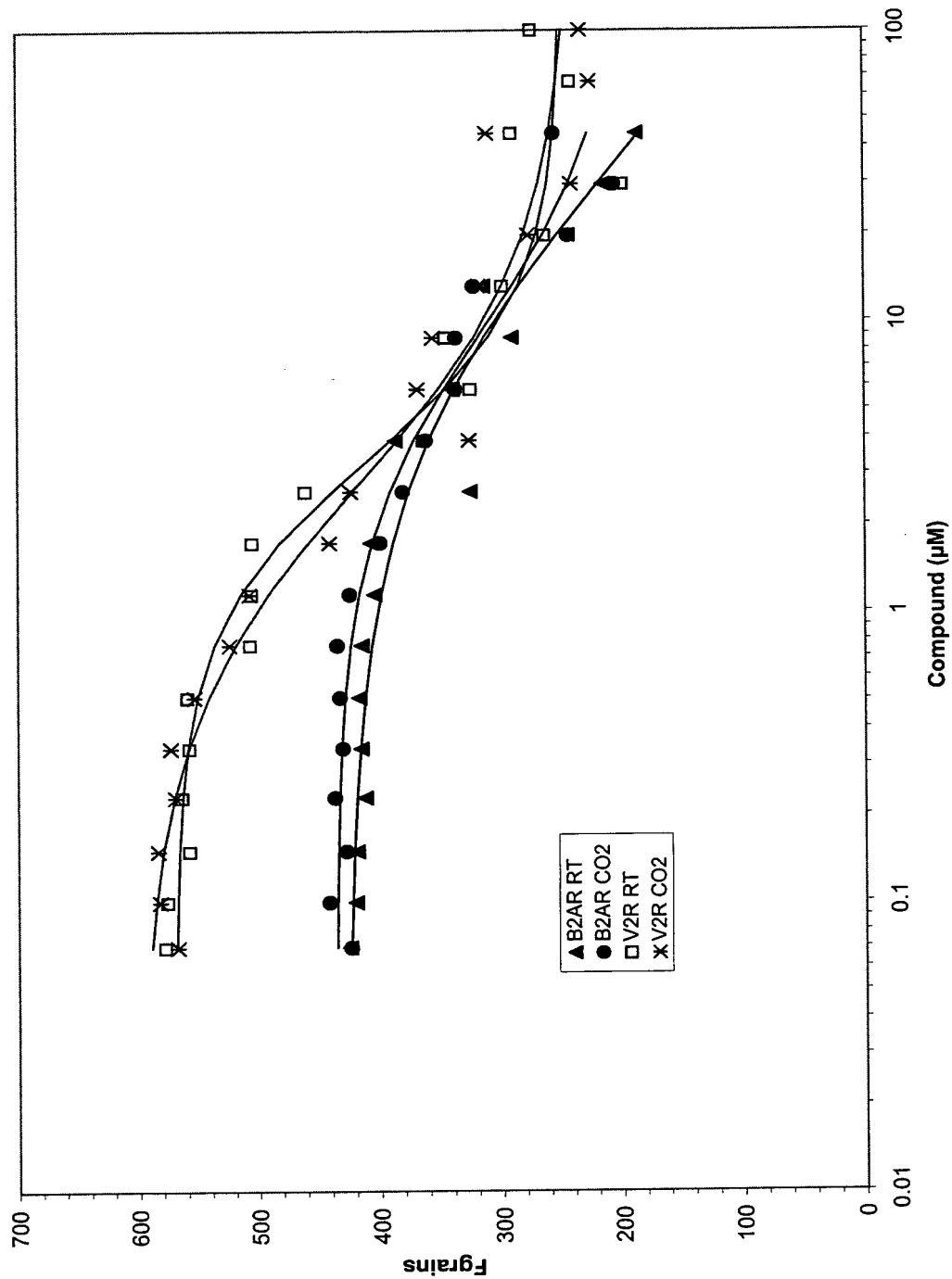


Figure 12

RO-31-8425

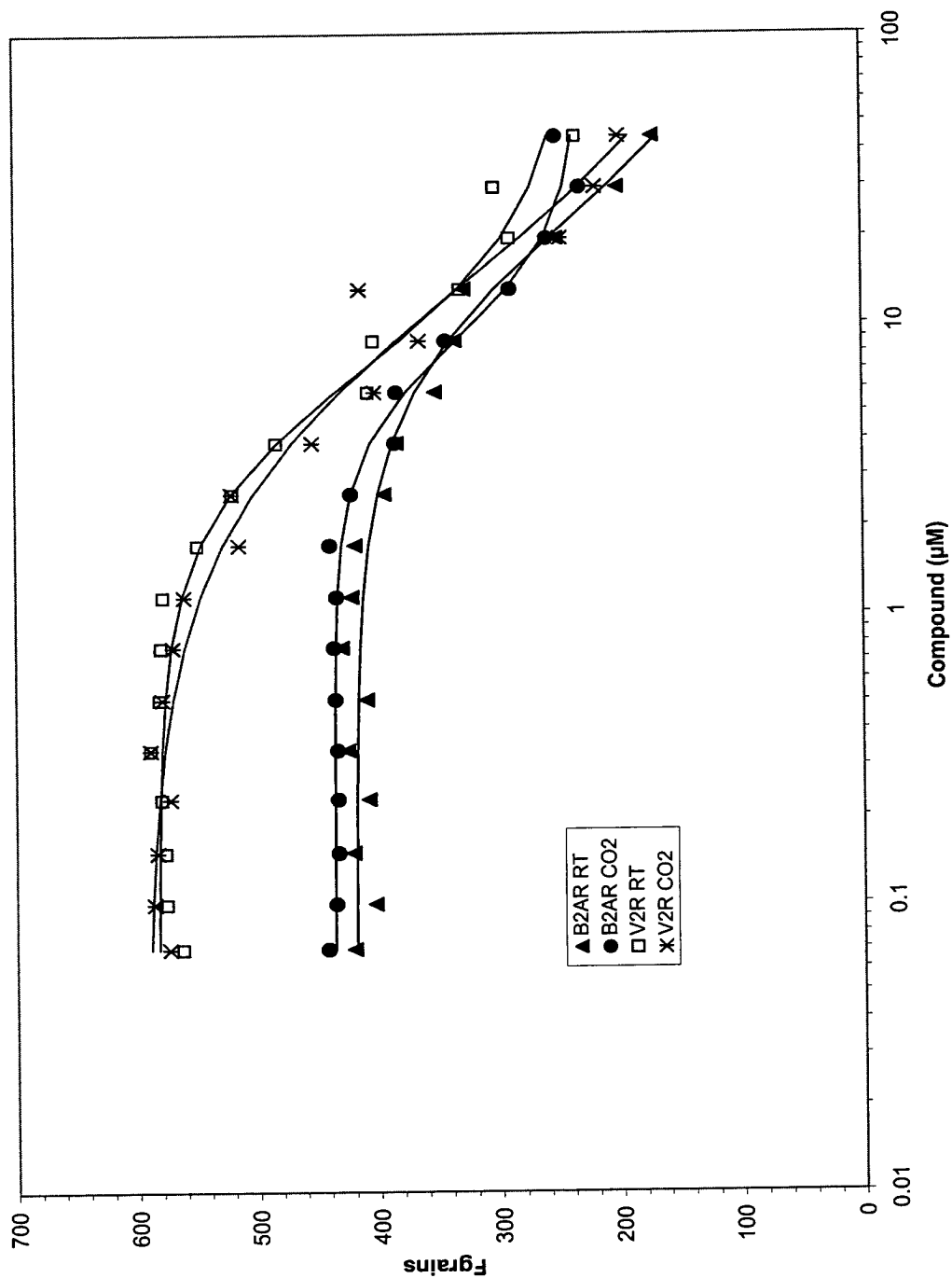


Figure 13

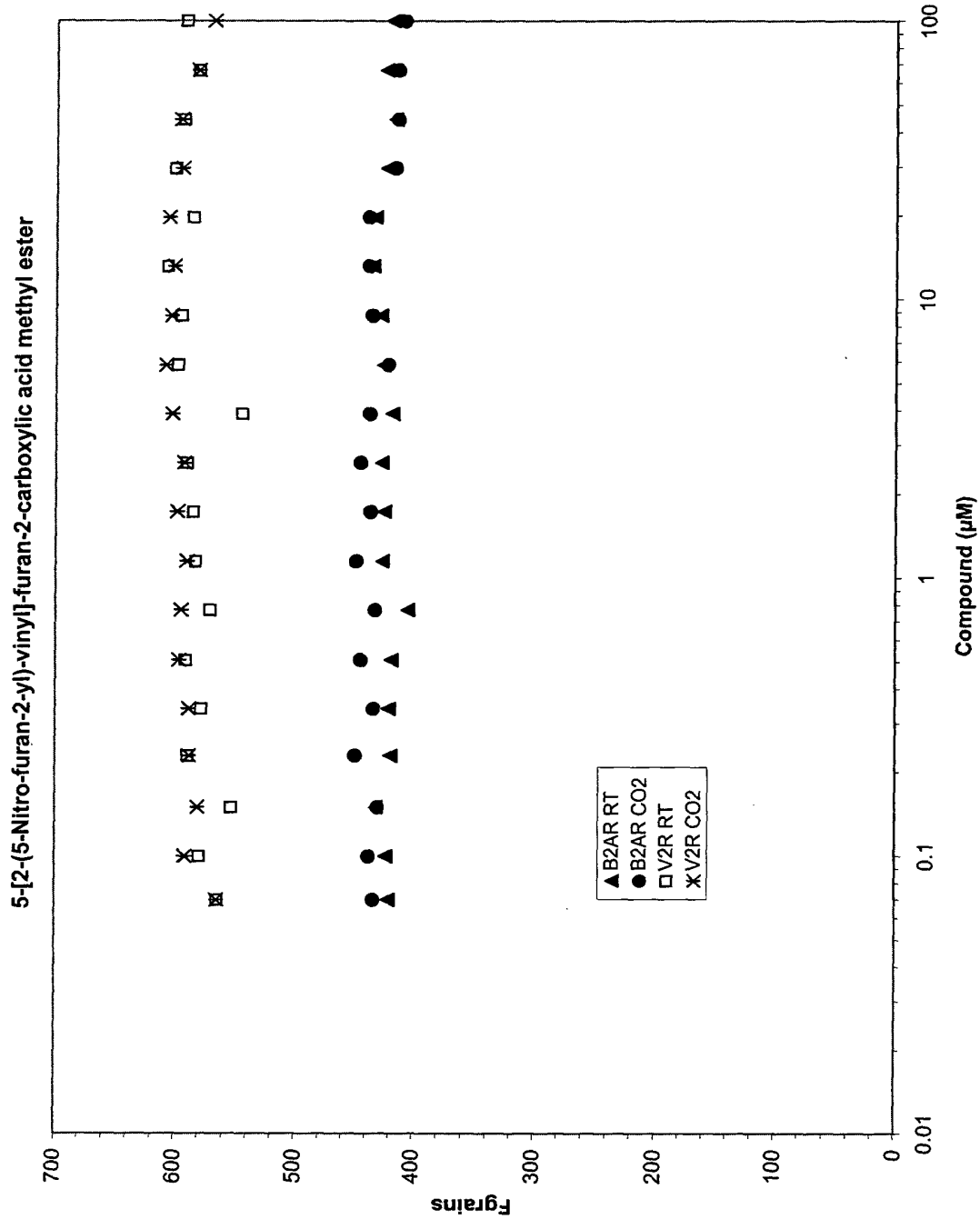


Figure 14

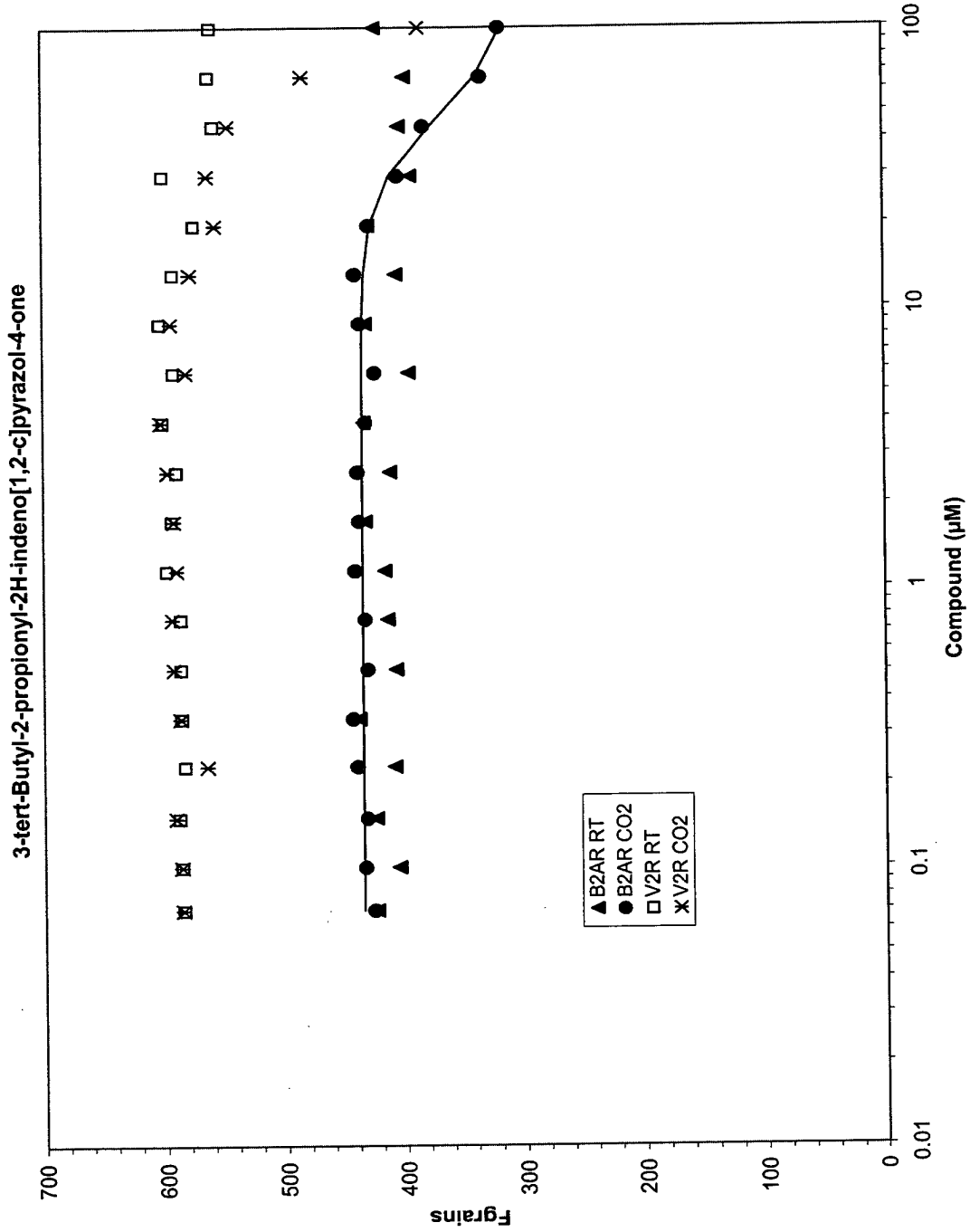


Figure 15

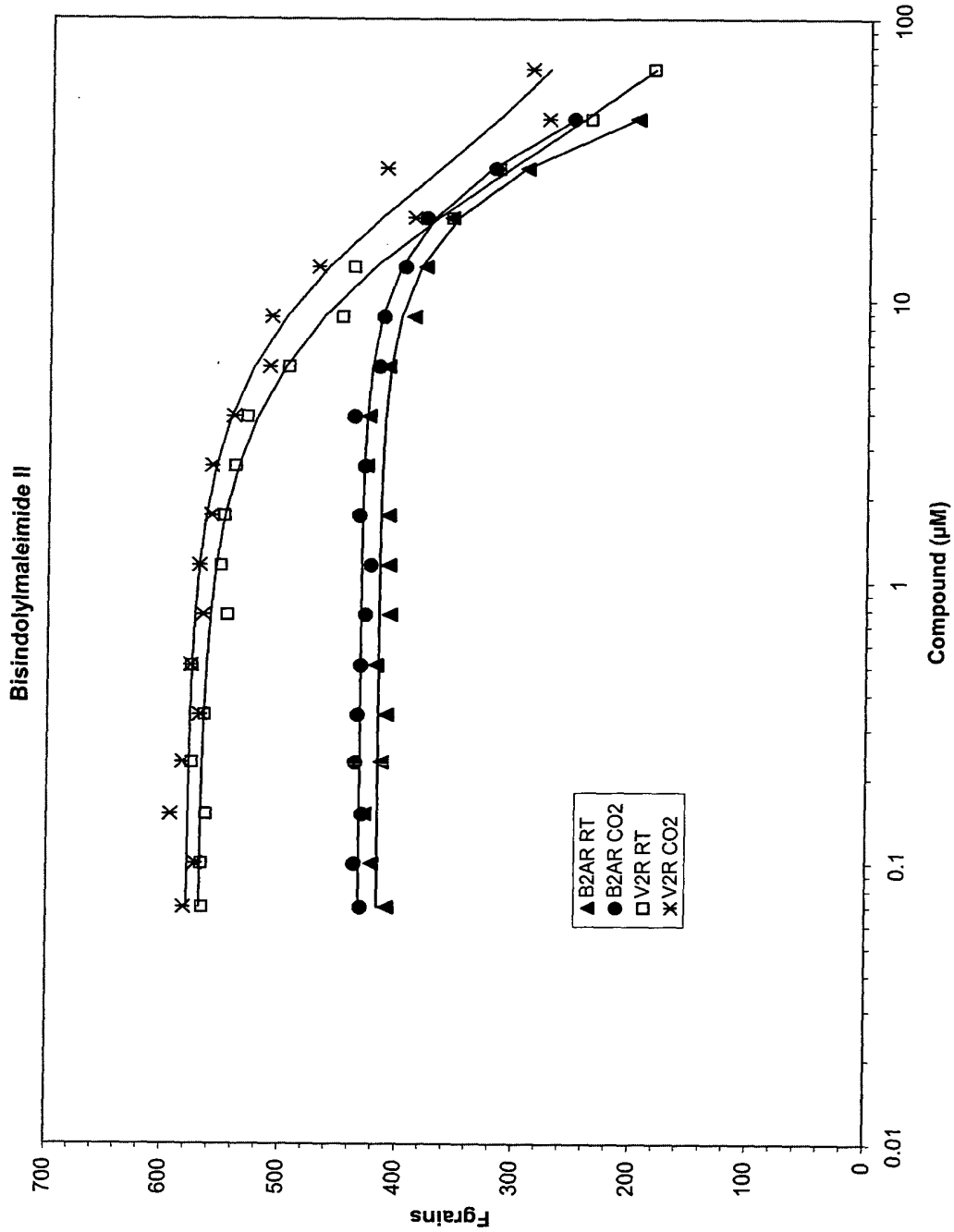


Figure 16

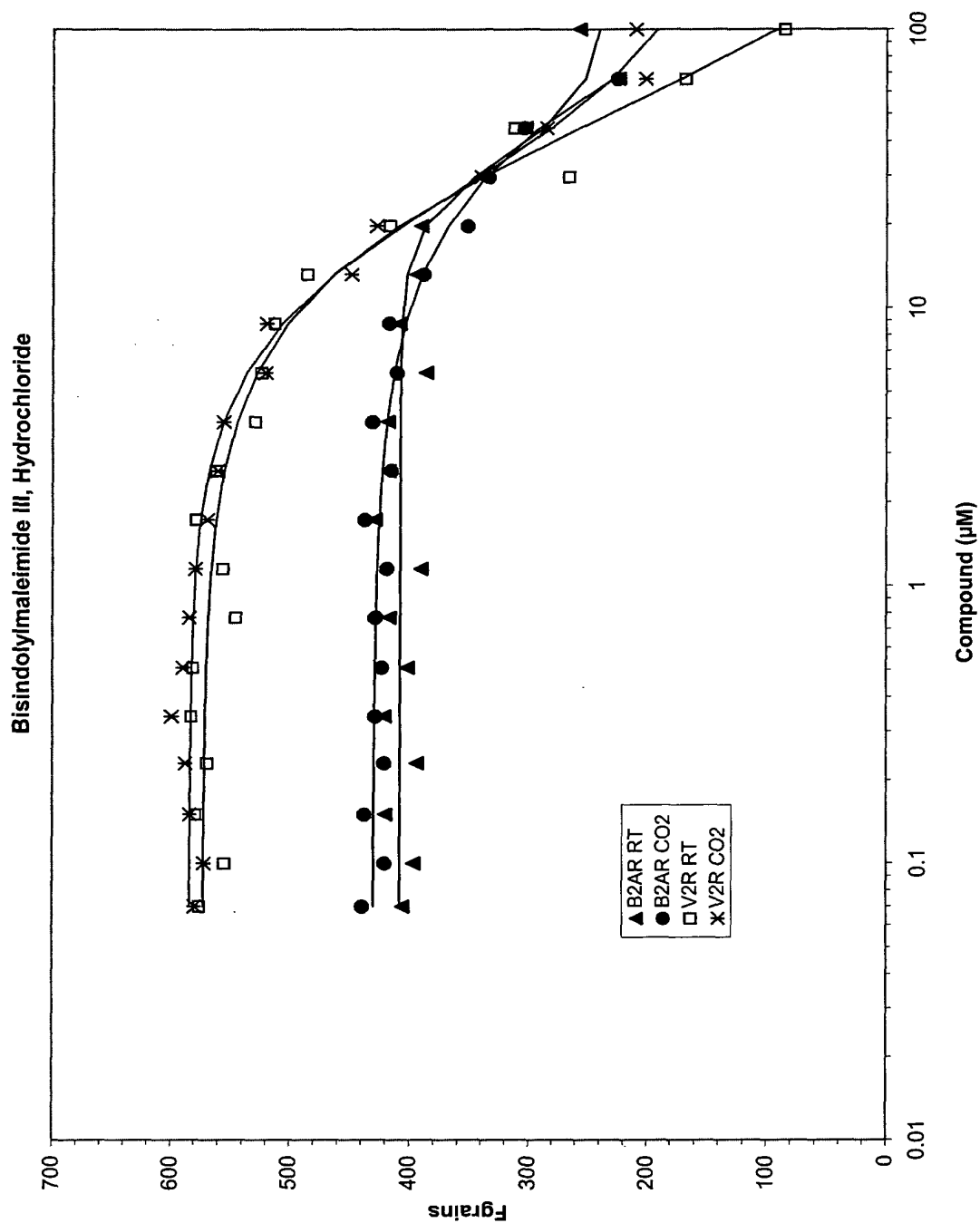


Figure 17

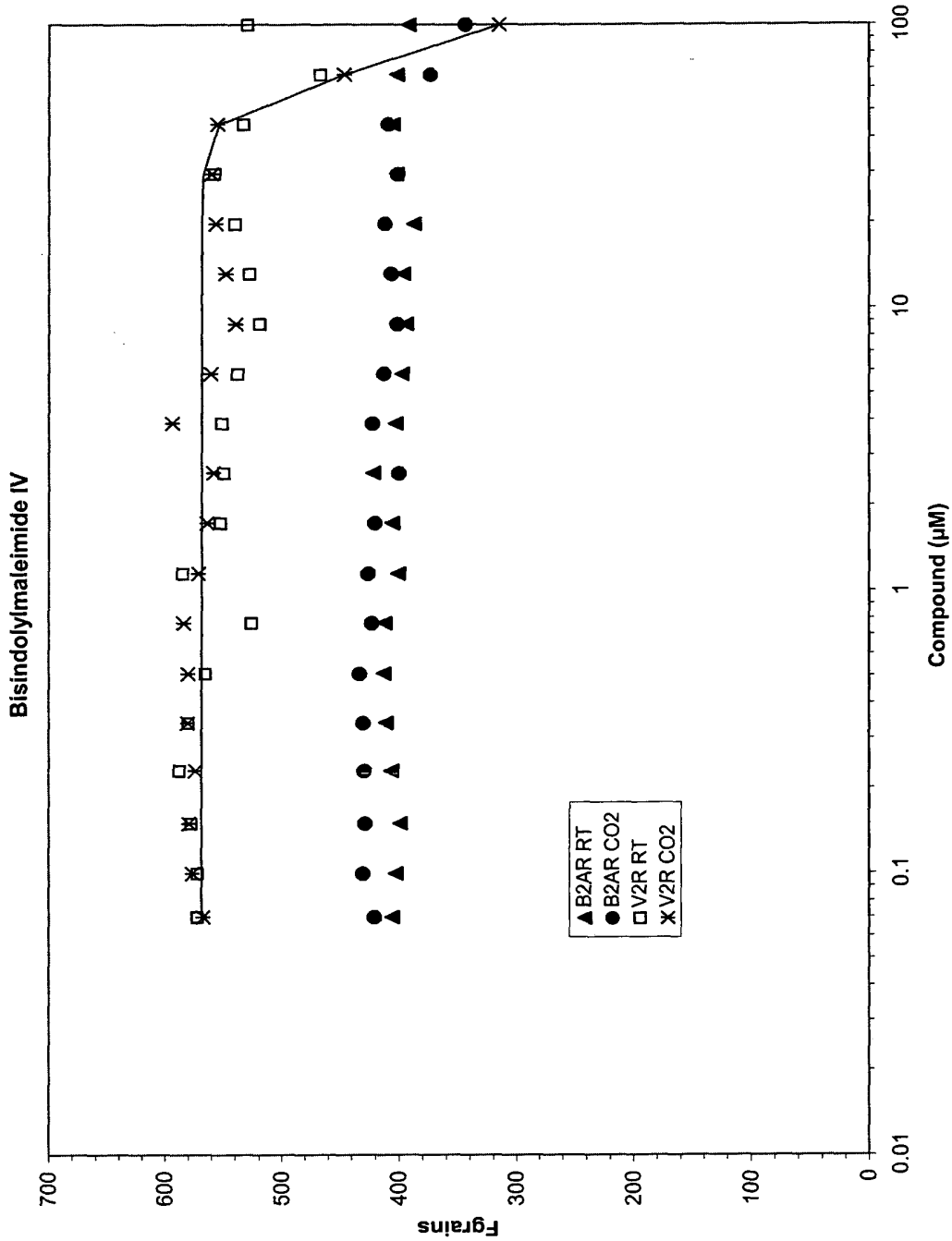


Figure 18

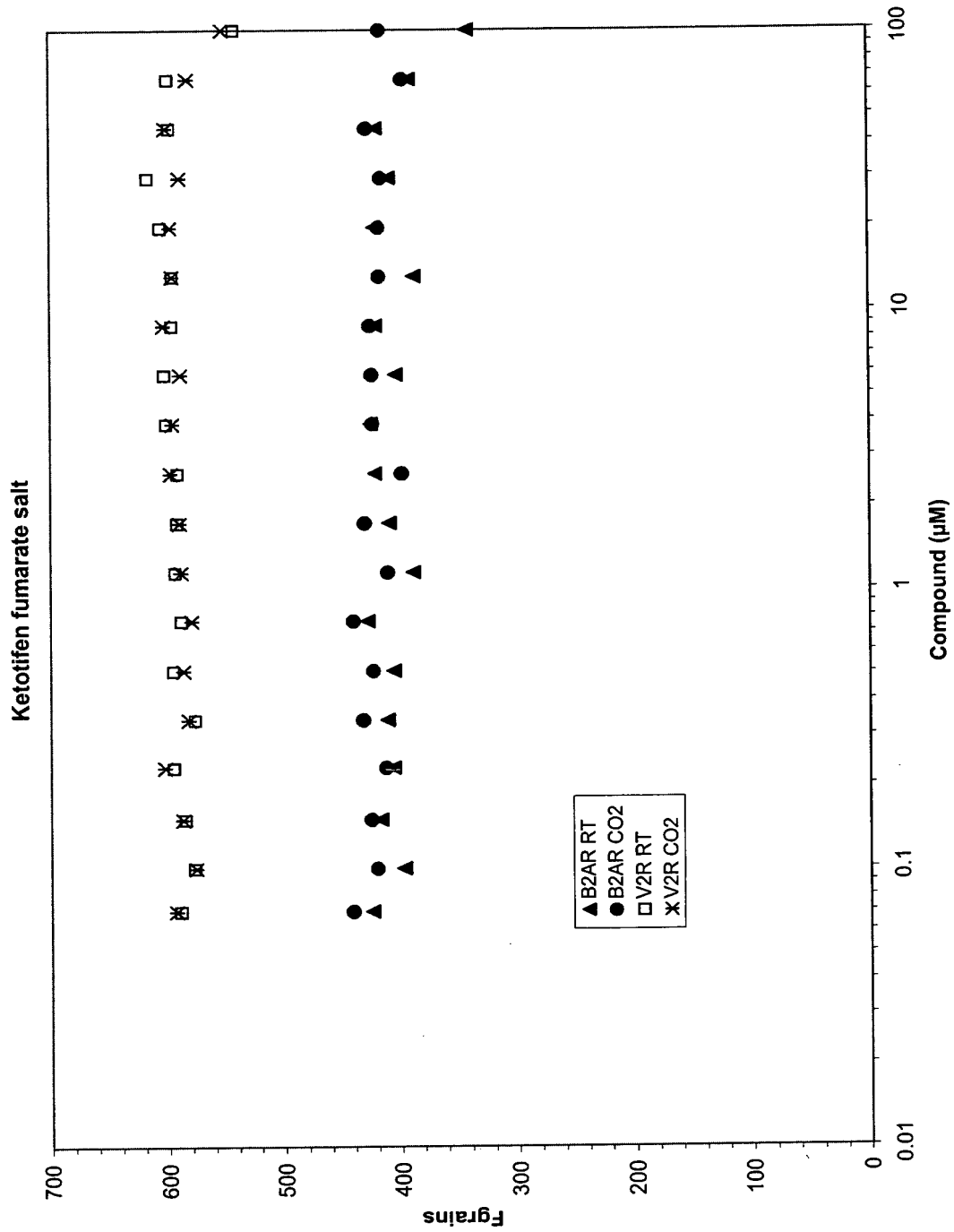


Figure 19

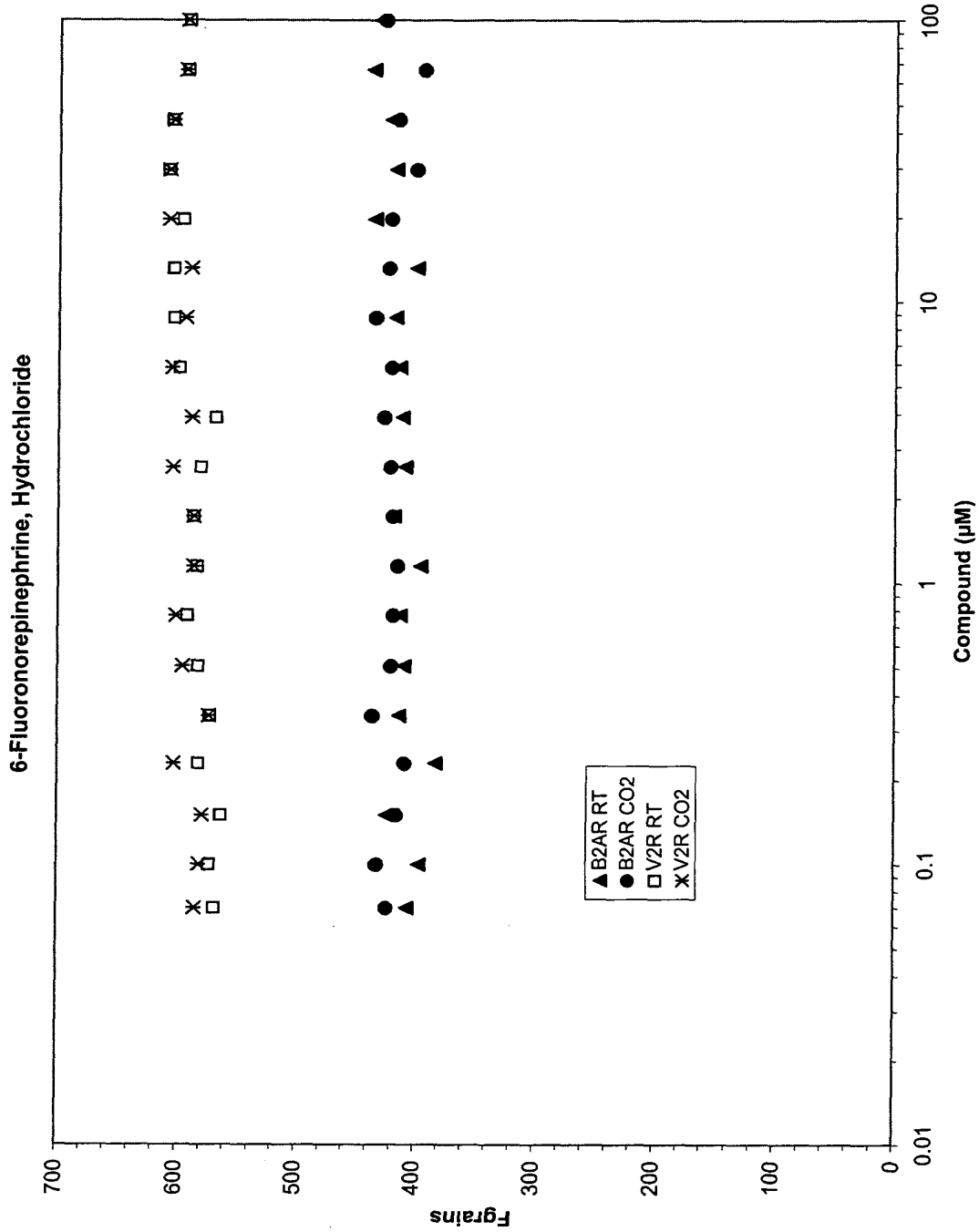


Figure 20

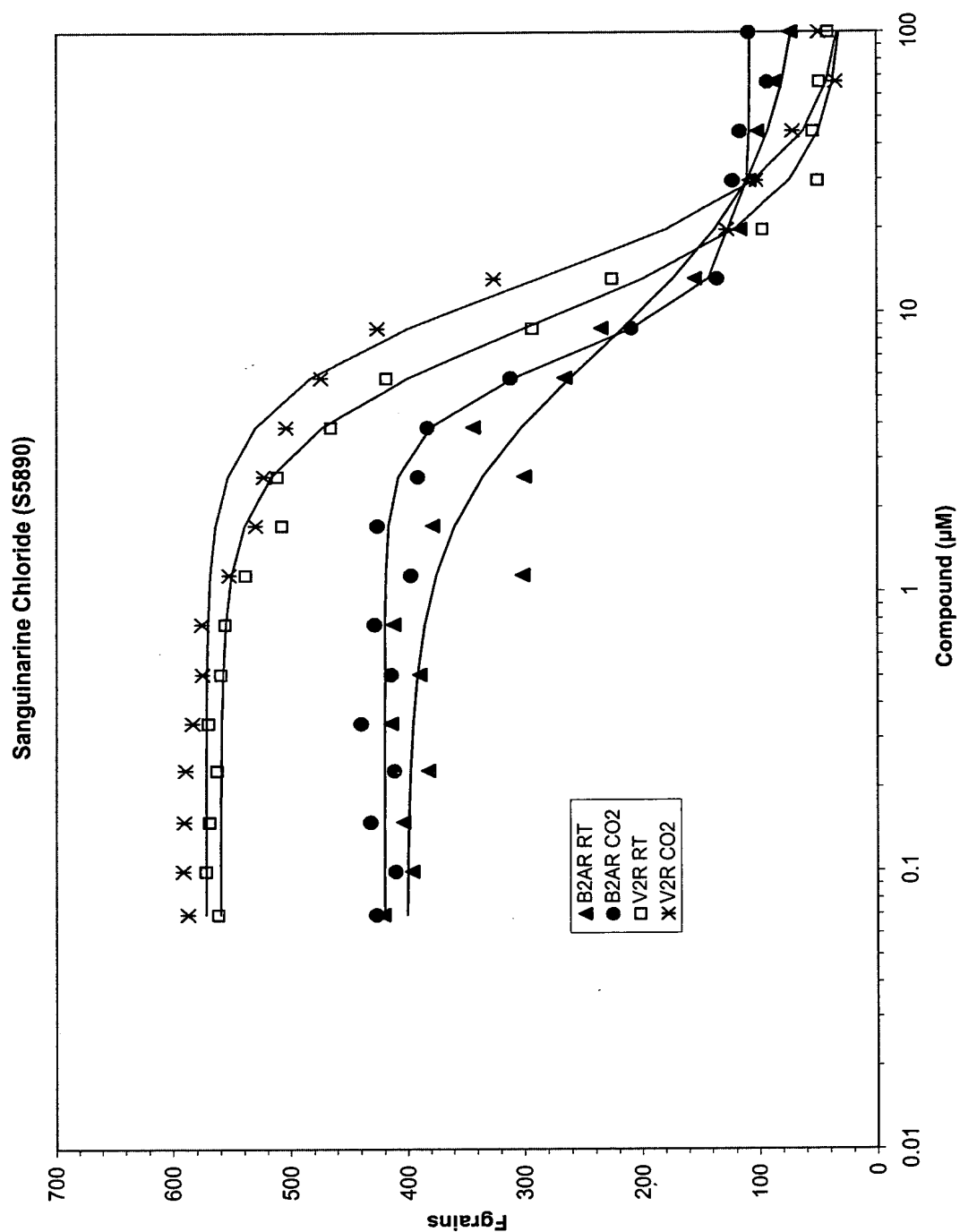


Figure 21

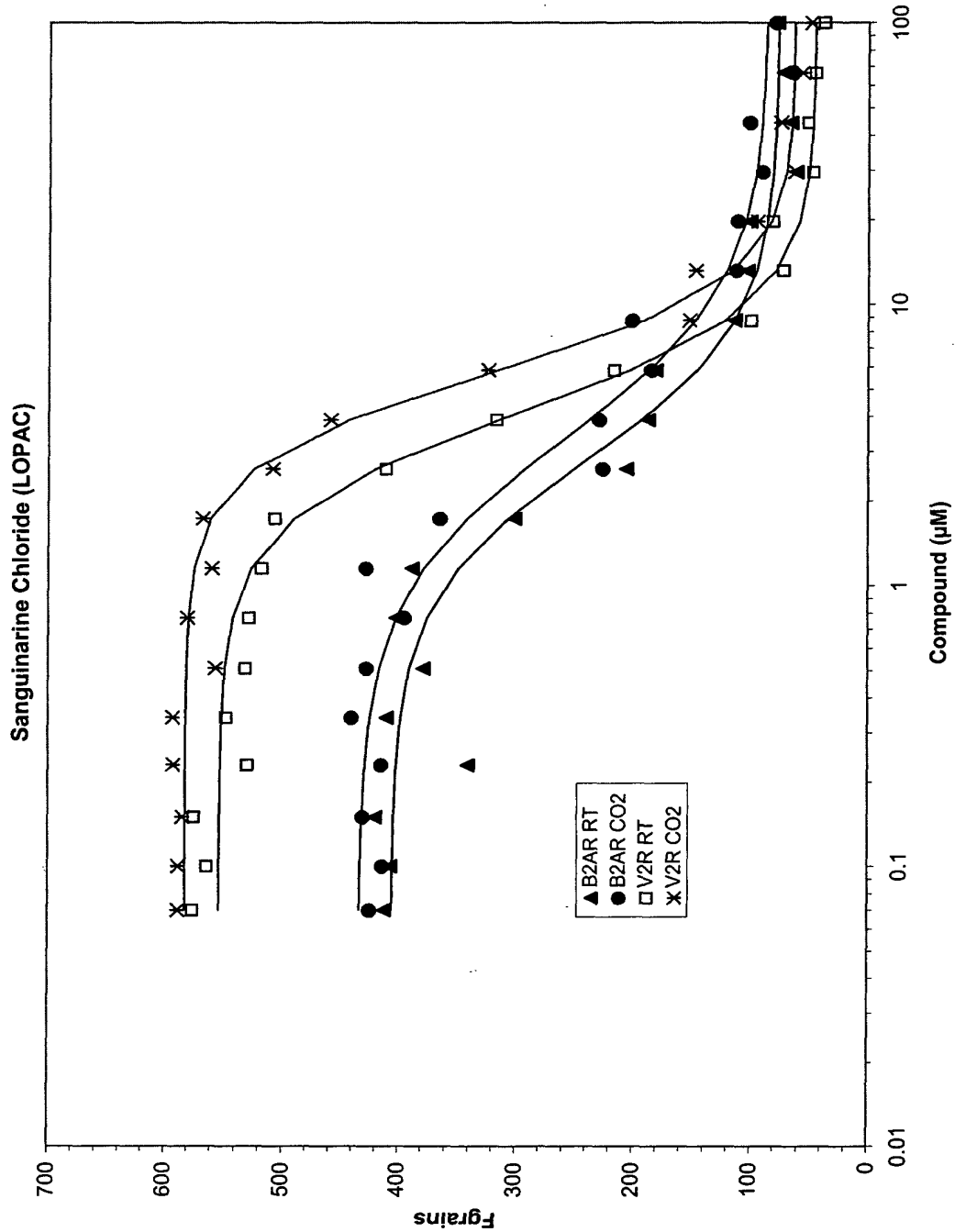


Figure 22

